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SPACE SHUTTLE ORBITER TRIMMED

CENTER-OF-GRAVITY EXTENSION STUDY:

VOLUME IX - EFFECTS OF CONFIGURATION

MODIFICATIONS ON THE AERODYNAMIC

CHARACTERISTICS OI THE 140A/B ORBITER

AT MACH NUMBERS OF 1.5, 2.0, AND 2.5

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SPACE SHUTTLE ORBITER TRIMMED CENTER-OF-GRAVITY EXTENSION STUDY: VOLUME IX--EFFECTS OF CONFIGURATION MODIFICATIONS ON THE AERODYNAMIC CHARACTERISTICS OF THE 140A/B ORBITER AT MACH NUMBERS OF 1.5, 2.0 AND 2.5

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SUMMARY

Wind-tunnel tests were conducted in the Langley Unitary Plan Wind Tunnel to determine the effects of modifications designed to extend the forward trimmed center-of-gravity envelope on the static longitudinal and lateral-directional characteristics of an 0.01 scale, 140 A/B Space Shuttle Orbiter model at Mach numbers of 1.5, 2.0, and 2.5. The test Reynolds number was 2.15×10^6, based on model fuselage reference length. The angle-of-attack range was -1° to 32° for sideslip angles of 0° and 5°.

All the modifications, forward extended wing fillet, a flat plate canard, and a blended canard, provided significant reductions in longitudinal stability at all Mach numbers tested. The modifications also tended to increase the directional stability at the higher angles of attack and in most cases, provided some increases in positive effective dihedral.

INTRODUCTION

The longitudal center-of-gravity range of the Space Shuttle Orbiter

for trimmed flight during entry, approach, and landing is quite limited.

This puts a considerable constraint on the allowable mass distribution of

Shuttle payloads. In an effort to extend the orbiter center-of-gravity

envelope, a study was undertaken at the Langley Research Center to

determine the feasibility of developing simple, "bolt-on" modifications.

Modifications which were studied included changes in fuselage nose

shape and wing fillet planform and the addition of fixed canard surfaces.

Systems design analyses were undertaken to determine the weight penalties

(ref. 1), and aerodynamic heating tests and analyses provided information

on the impact of the modifications on thermal protection system

requirements (ref. 2). Wind-tunnel force and moment tests were conducted

across the speed range to assess the effectiveness of the modifications on

flight characteristics. Hypersonic aerodynamic characteristics of the

modification' ~re presented in references 3 and 4, and transonic

characteristics in reference 5.

The purpose of this paper is to present the effects of planform fillet

and canard modifications on the aerodynamic characteristics of the 140A/B

orbiter configuration at Mach numbers from 1.5 to 2.5. The investigation

was conducted in the low Mach number test section of the Langley Unitary

Plan Wind Tunnel at Mach numbers 1.5, 2.0 and 2.5 for a Reynolds number of

2.15×10^6, based on fuselage reference length. The angle-of-attack range

extended from approximately -1° to 32° at sideslip angles of 0° and 5°.

SYMBOLS

The longitudinal aerodynamic data are presented about the stability system
of axes, and the lateral directional data are presented about the body axes.
All of the aerodynamic data contained herein are non-dimensionalized using the
baseline model values for wing reference area, span, and mean aerodynamic
chord. The moment reference point is located at 65 percent of the fuselage
reference length (i.e. 21.38 cm (8.42 in.)) aft of the model nose. Values are
given in both SI and US Customary Units. When two symbols are listed for an
aerodynamic coefficient, the second applies to the computerized tabulation of
coefficients in the appendix.

A aspect ratio

b wing span, 23.79 cm (9.37 in.)

c mean aerodynamic chord, 12.06 cm (4.75 in.)

C_A, CA   axial-force coefficient, $\dfrac{\text{Axial force}}{q_\infty S}$

C_D, CD   drag coefficient $\dfrac{\text{Drag force}}{q_\infty S}$

C_L, CL   lift coefficient, $\dfrac{\text{Lift force}}{q_\infty S}$

C_ℓ, CBL   rolling-moment coefficient, $\dfrac{\text{Rolling moment}}{q_\infty Sb}$

C_{ℓ_β} $\left(\dfrac{\Delta C_\ell}{\Delta \beta}\right)_{\beta=0°,\ 5°}$, per degree

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C_m, CLM   pitching-moment coefficient, $\dfrac{\text{Pitching moment}}{q_\infty S c}$

C_N, CN   normal-force coefficient, $\dfrac{\text{Normal force}}{q_\infty S}$

C_n, CYN   yawing-moment coefficient, $\dfrac{\text{Yawing moment}}{q_\infty S b}$

C_{n_β} $\left(\dfrac{\Delta C_n}{\Delta \beta}\right)_{\beta=0°,5°}$, per degree

C_{Y_β} $\left(\dfrac{\Delta C_Y}{\Delta \beta}\right)_{\beta=0°,5}$, per degree

L/D   lift-drag ratio

ℓ fuselage reference length, 32.77 cm (12.90 in.)

M   Mach number

q_∞ free-stream dynamic pressure, Newtons per meter^2 (lb/ft^2)

R_ℓ free-stream Reynolds number based on ℓ

S   wing reference area, 0.025 m^2 (0.269 ft^2)

x_0, y_0 model stations, cm (in.)

α angle of attack, deg

β sideslip angle, deg

δ_{BF} body-flap deflection angle (positive for trailing edge down), deg

δ_e elevon deflection angle (positive for trailing edge down), deg.

δ_{SB} split-rudder flare angle (positive for trailing edges deflected outboard), deg.

Model Configuration Components:

B_1WVS_0EF baseline 140 A/B orbiter configuration

B_1 baseline fuselage forebody

C_4 canard with flat-plate airfoil sections

C_5 blended canard with contoured airfoil sections

E   baseline elevon

F   baseline body flap

S_0 baseline planform fillet

S_2 fillet modification having planform geometry similar to a strake

V   baseline vertical tail

W   baseline wing (outboard panel) having a leading-edge sweep of 45°

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APPARATUS AND TESTS

Model

Geometric details of the model used in the wind-tunnel investigation are shown in figure 1 and table 1, nd photographs of the model are shown in figure 2. The baseline configuration (fig. 1(a)) was an 0.01-scale model of the Rockwell International 140 A/B Space Shuttle Orbiter configuration described in reference 3. The model had a removable forebody and removable components in the wing planform fillet region which allowed geometry modifications. The modifications shown in figures 1(b), 1(c), and 1(d) consisted of one wing planform fillet configuration, S_2, and two canard configurations, C_4 and C_5. All configurations of the present investigation incorporated a split-rudder flare angle of 55°.

The leading edge of the S_2 fillet modification produced a planform shape very similar to a strake (fig. 1(b)). Fillet S_2 had a leading-edge sweep angle of 67.4° that extended outboard to $y_0 = 3.584$ cm at $x_0 = 12.929$ cm. At this point, the fillet leading-edge sweep increased to 85°, and the effective fillet intersection with the outboard wing panel was the same as for the baseline fillet (S_0) intersection. The streamwise sections of this modified fillet were faired with the outboard wing panel and had leading-edge radii identical to those of the baseline fillet, S_0.

Canard C_4 (fig. 1(c)) had a flat-plate section with a rounded leading edge and a sharp trailing edge. The leading-edge sweep angle was 54.7°. The trailing edge was formed by a circular arc segment having a radius of 6.217 cm. The blended canard, C_5 (fig. 1 (d)) was about the same size as canard C_4, but it was contoured more realistically for the actual flight environment where aerodynamic heating effects must be considered.

Tests

The investigation was conducted in the low Mach number test section of the Langley Unitary Plan Wind Tunnel (ref. 9) at Mach numbers of 1.5, 2.0, and 2.5. Free-stream Reynolds number for the investigation was approximately 2.15×10^6, based on fuselage reference length. Tests angles of attack were varied from about $-1°$ to $32°$ at $0°$ and $5°$ of sideslip. An internally mounted strain-gage balance was used to measure aerodynamic forces and moments acting on the model. Corrections have been applied to the angles of attack and sideslip to account for sting and balance deflections produced by aerodynamic loads on the model.

Transition strips approximately 0.16 cm wide were located behind the leading edges of all model components using carborundum grains having a nominal grain diameter of 0.027 cm. The streamwise locations of the transition strips were 3.05 cm behind fuselage nose and 1.02 cm behind the leading edges of the wing planform fillets, canards, wing, and vertical tail.

RESULTS AND DISCUSSION

Aerodynamic data obtained in the present study are tabulated by run number in the appendix which also includes a Data Set/Run Number Collation Summary (table II) to expedite the location of data for a particular configuration and test condition.

Longitudinal Aerodynamic Characteristics

The longitudinal aerodynamic characteristics for the baseline orbiter configuation, $B_1 WVS_0 EF$, are shown in figure 3 for three elevon deflections at $\delta_{BF} = -11.7°$ and $\delta_{SB} = 55°$.

The effects of the various configuration modifications on the static longitudal characteristics of the orbiter model are presented in figures 4 to 6. Replacing the baseline fillet, S_0, with the forward extended fillet, S_2 produced significant reductions in longitudal stability levels over the Mach number range of this investigation (fig. 4). The model was still longitudinally stable in the nominal flight angle-of-attack range ($10 \leq \alpha \leq 13.2°$) at Mach 1.5, but it was unstable at the two higher Mach numbers. With the c.g. moved to the maximum forward hypersonic trim position, $x/\ell=0.623$, as taken from the table in reference 6, the model was longitudinally stable in the nominal flight angle of attack range at all three Mach numbers. The dashed line in figure 4 represents the $C_m = 0$ line rotated to reflect the maximum forward c.g. location.

Addition of the canards (figs. 5 and 6) also produced significant reductions in longitudinal stability at all Mach numbers tested, but the model is still stable at Mach 1.5. Figures 5(a) and 6(a) show that the unstable break in the baseline model pitching moment curve at Mach 1.5 was eliminated by installing the canards. Reference 8 also shows this effect for the C_4 canard at a Mach number of 1.2. A comparison of the model longitudinal characteristics with the C_4 and blended (C_5) canards (fig. 7) indicates that the flat-plate canard produced larger positive pitching-moment increments than the blended canard. Reference 5 also shows the same trend at Mach 6.0. Post-test measurements indicated that, although the areas of the canards were nearly the same, the estimated effective moment arm of the blended canard was somewhat shorter than that of the flat-plate canard, and this may explain some of the differences. The blended canard produced about the same negative stability contribution as the S_2 fillet for the Mach number range of these tests.

With the c.g. moved to the maximum forward position for hypersonic trim (dashed zero-C_m lines, figs. 5 and 6) as taken from the table in reference 6 (0.6182 for C_4 and 0.623 for the blended canard, assuming its contribution to be equivalant to that of S_2), the model would be longitudinally stable at all Mach numbers except for the blended canard at Mach 2.5 (fig. 6(c)) where it is neutrally stable in the nominal flight angle-of-attack range.

Lateral-Directional Aerodynamic Characteristics

The static lateral-directional characteristics of the baseline model and with the configuration modifications are presented in figures 8 to 12. Figure 9 shows that, in general, all of the modifications tended to increase the directional stability of the baseline model over the higher angle-of-attack range at all Mach numbers investigated. The modifications also increased the positive effective dihederal parameter, $-C_{\ell_\beta}$, at Mach numbers of 1.5 and 2.0, but a slight reduction in this parameter occurred at Mach 2.5.

Concluding Remarks

The results of an investigation of the static aerodynamic characteristics of an 0.01 scale Space Shuttle Orbiter model at Mach numbers of 1.5, 2.0, and 2.5, as affected by configuration modifications, showed that the extended fillet, flat-plate canard, and blended canard decreased the longitudinal stability at all Mach numbers tested. With the center of gravity moved to the maximum forward hypersonic trim position, the model with the modifications was longitudinally stable at all Mach numbers tested, with the exception that the model with the blended canard was neutrally stable at Mach 2.5. The modifications increased the directional stability at high angles of attack at all Mach numbers tested and increased the effective dihedral parameter at Mach numbers of 1.5 and 2.0.

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TABLE I. - MODEL GEOMETRY

Theoretical wing:

Area, planform, m^2 (ft^2) 0.02499 (0.2690)

Area, elevon, m^2 (ft^2) . . . . 0.001951 (.0210)

Span, cm (in.) 23.792 (9.367)

Chord, centerline root, cm (in.) 17.507 (6.892)

Chord, tip, cm (in.) 3.501 (1.378)

Taper ratio 0.20

Aspect ratio 2.265

Leading-edge sweep angle, deg 45.0

Trailing-edge sweep angle, deg . . . . -10.0

Dihedral angle, deg 3.5

Incidence angle, deg (y_0 = 5.056 cm) 0.5

Twist angle, deg 3.0

Airfoil section, tip . . . . 0012-64 modified

x_0, wing leading edge, plane of symmetry 21.234 (8.360)

Wing planform fillet S_0, baseline:

Leading-edge sweep angle, deg 80.9

x_0, wing leading-edge (theoretical)
intersection cm (in.) 25.984 (10.230)

Wing planform fillet S_2:

Leading-edge sweep angle (forward portion), deg 67.4

Leading-edge sweep angle (aft portion), deg 85.0

x_0, intersection of forward and aft fillet leading edges,
cm (in.) 12.929 (5.090)

x_0, intersection of aft fillet and theoretical wing,
cm (in.) 25.984 (10.230)

TABLE I. - CONCLUDED

Canard C_4:

    Leading-edge sweep angle(ft^2) 54.7

    Exposed area, m_2 (ft_2). . . . . 0.002544(0.027388)

Blended Canard C_5

    Exposed area, m^2 (ft^2). . . . . . —— 0.001839 (0.019798)

    Leading-edge sweep angle, deg 58.15

Vertical tail:

    Area (theoretical), m^2 (ft^2) 0.003839 (0.041325)

    Leading-edge sweep angle, deg 45.0

    Root chord (theoretical), cm (in.) 6.820 (2.685)

    Tip chord (theoretical), cm (in.) 2.755 (1.085)

    Span, cm (in.) 8.019 (3.157)

Fuselage:

    Maximum cross-sectional area, m^2 (ft^2) . . . .   0.003595 (.0387)

    Length, cm (in.) 32.774 (12.903)

    Maximum width, cm (in.) 6.797 (2.676)

$S_{ref} = 0.02499$ m^2 (0.2690 ft^2)

$\bar{c}$ = 12.060 cm (4.748 in)

b = 23.792 cm (9.367 in)

l_{ref} = 32.774 cm (12.903 in)

55°

80.9°

X_o = 13.444 cm (5.293 in)

X_o = 21.234 cm (8.360 in)

X_o = 5.969 cm (2.350 in)

X_o = 27.348 cm (10.767 in)

0.635 cm (0.250 in)

3.175 cm (1.250 in)
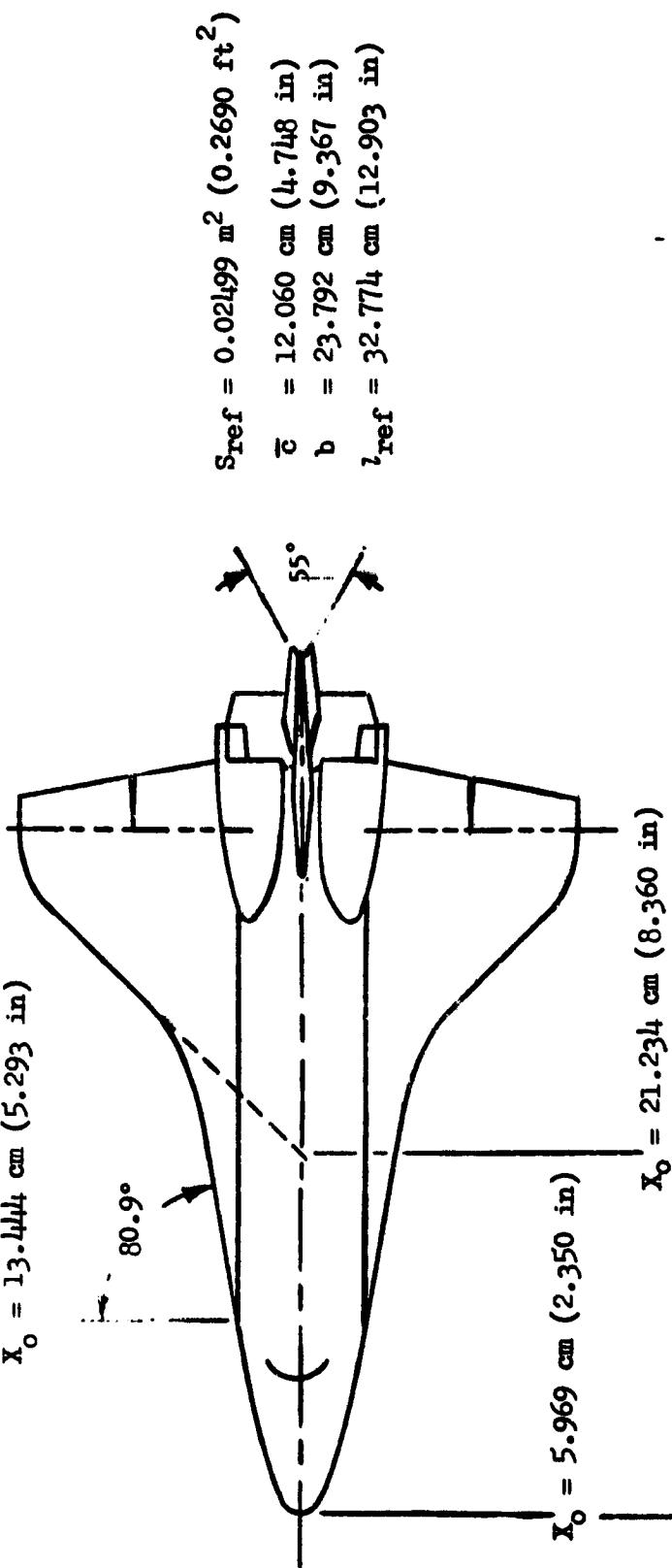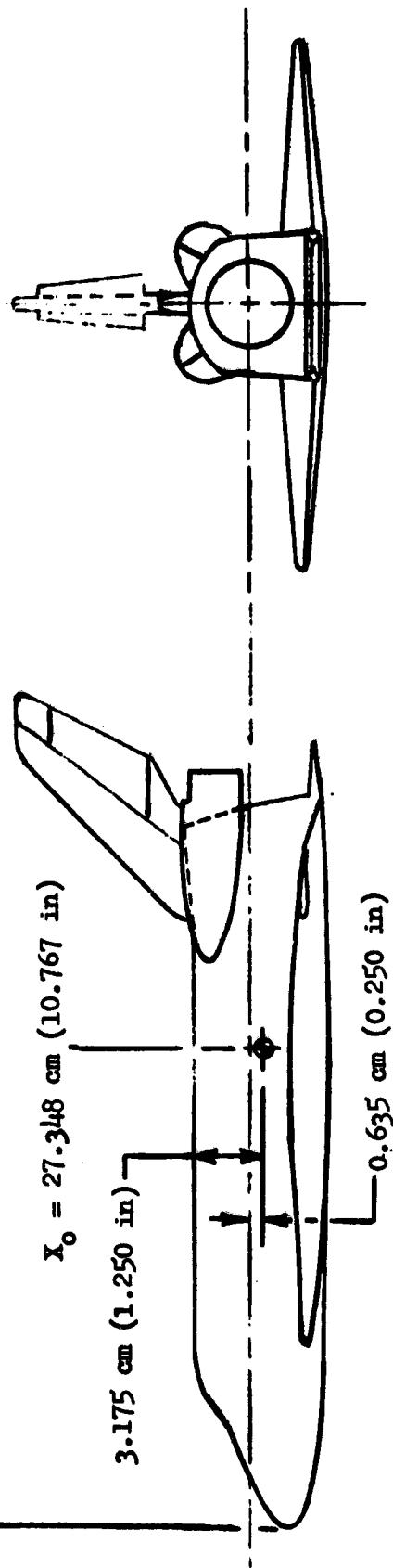
(a) Three-view of baseline orbiter model (Configuration B1WVS0EF)

Figure 1. - Model drawings.
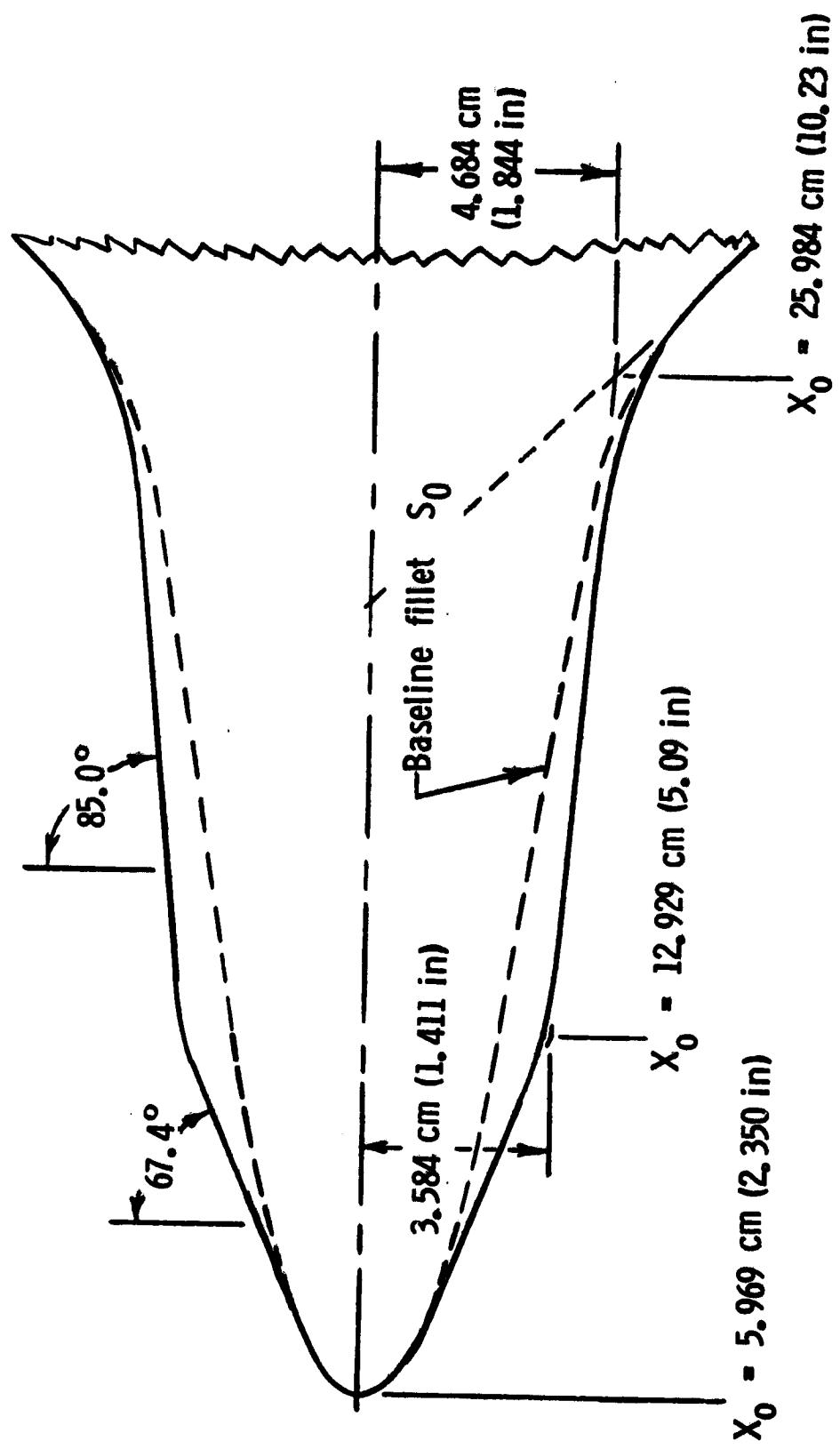
(b) Fillet S_2 (Configuration B_1WVS_2EF)

Figure 1.- Continued.
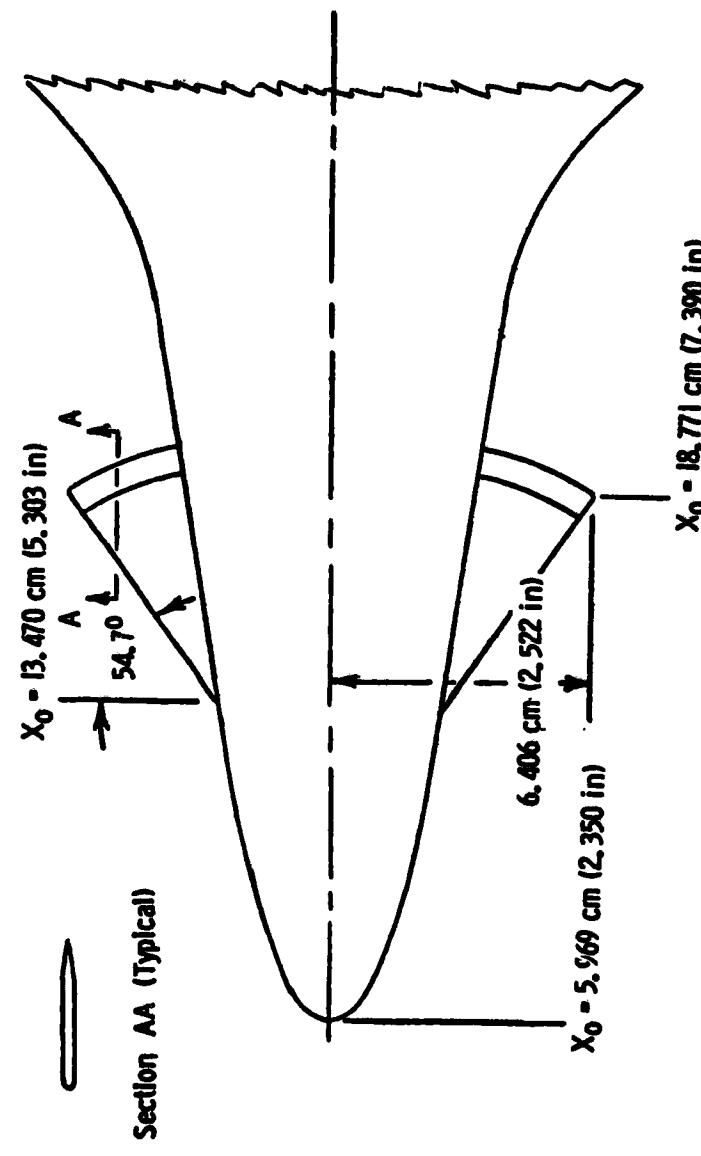
(c) Canard C_4 modification

Figure 1. - Continued

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Xo = 25.984 cm (10.23 in)

1.439 cm (0.567 in) Rad.

2.743 cm (1.08 in)

Xo = 18.669 cm (7.350 in)

0.897 cm (0.353 in)

58.15°

X_o = 13.056 cm (5.140 in)

X_o = 5.969 cm (2.35 in)

9.6°

5.989 cm (2.358 in)
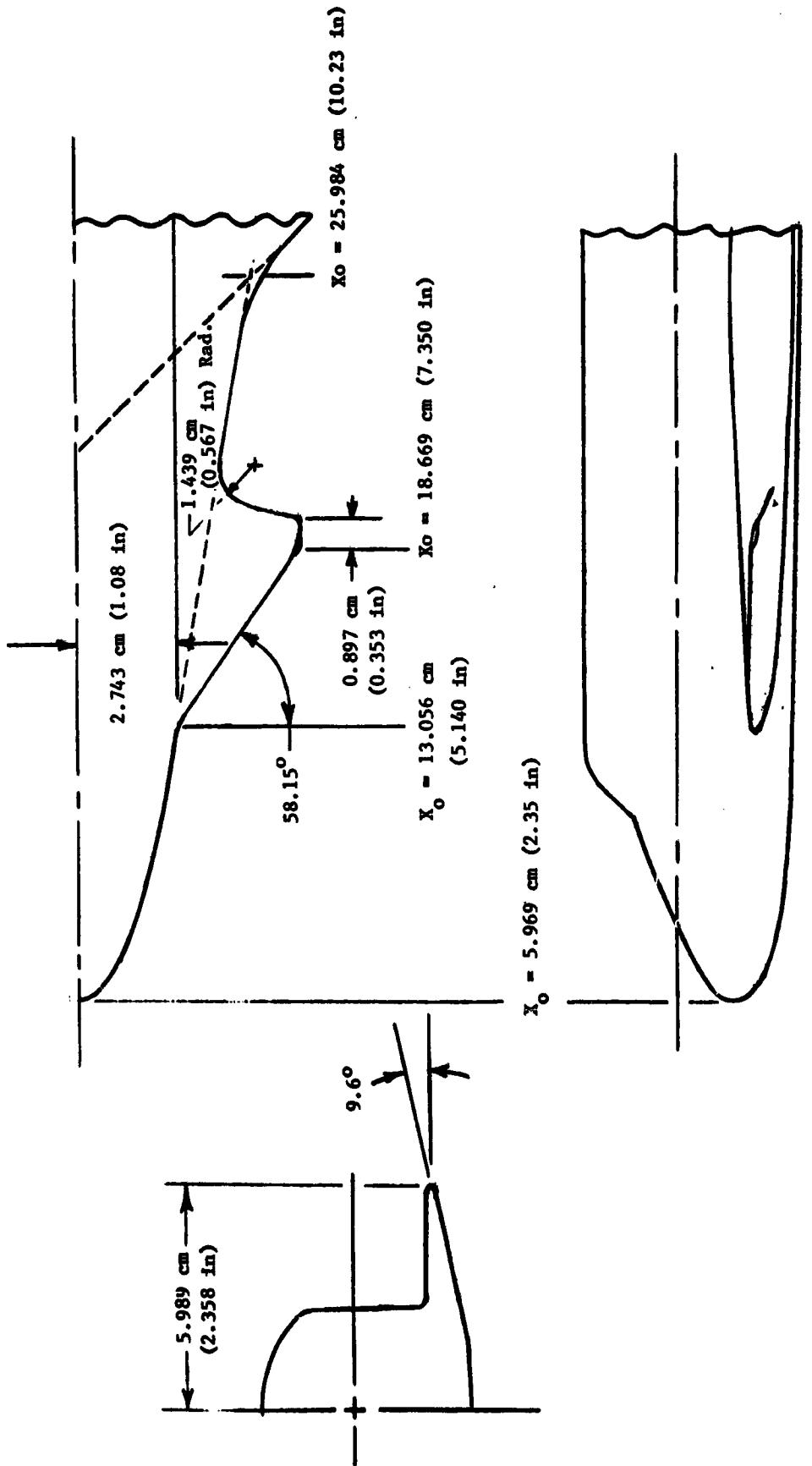
(d) Canard C_5

Figure 1. - Concluded.

17
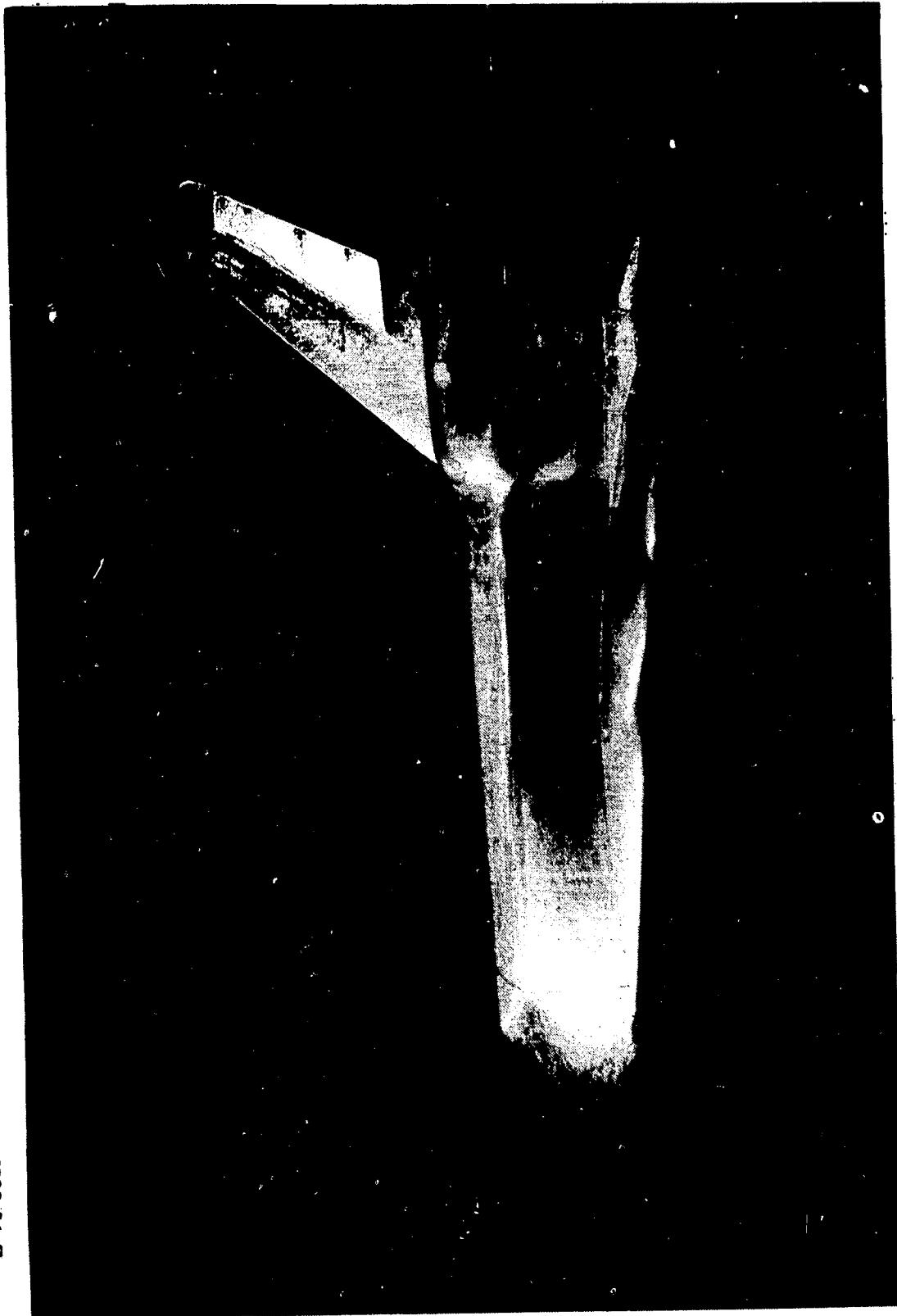
(a) Baseline orbiter model configuration.

Figure 2. - Photographs of the 0.01-scale 140 A/B orbiter model.
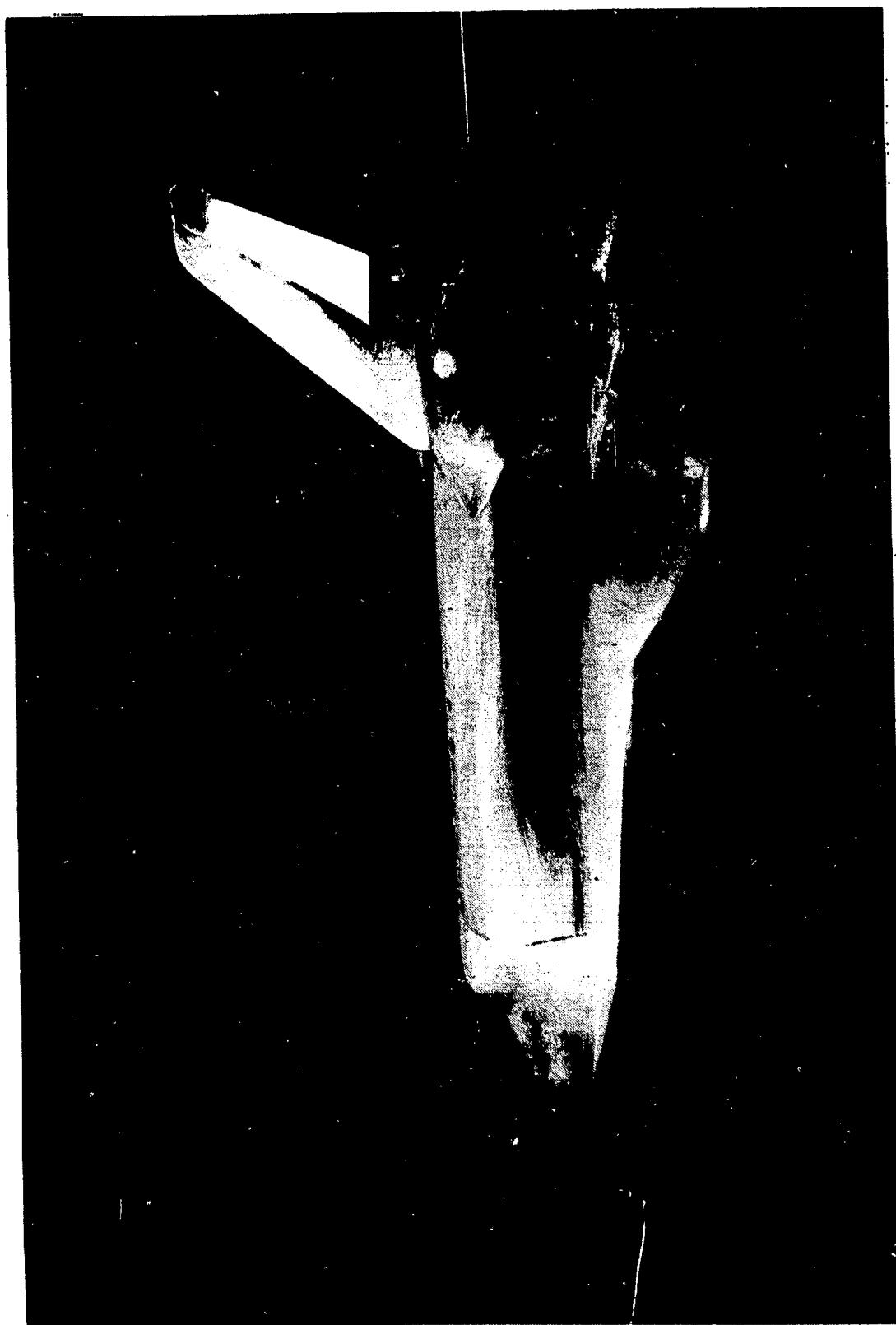
(b) Model with the S$_2$ fillet modifications.

Figure 2. - Concluded.
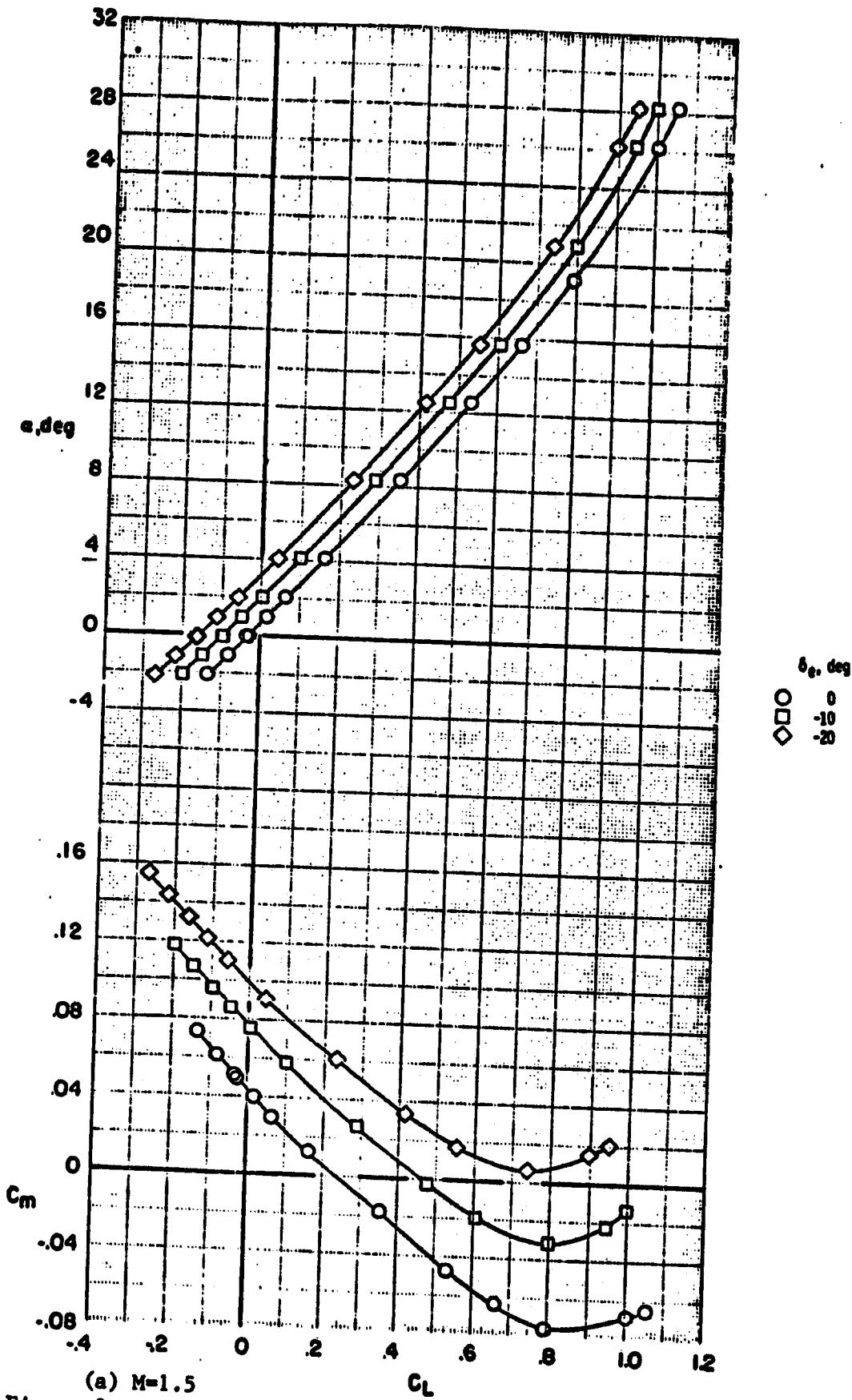
(a) M=1.5

Figure 3. - Longitudinal aerodynamic characteristics for baseline 140 A/B configuration (B_1WVS_0EF) $\delta_{BF}=-11.7°$; $\delta_{SB}=55°$

20
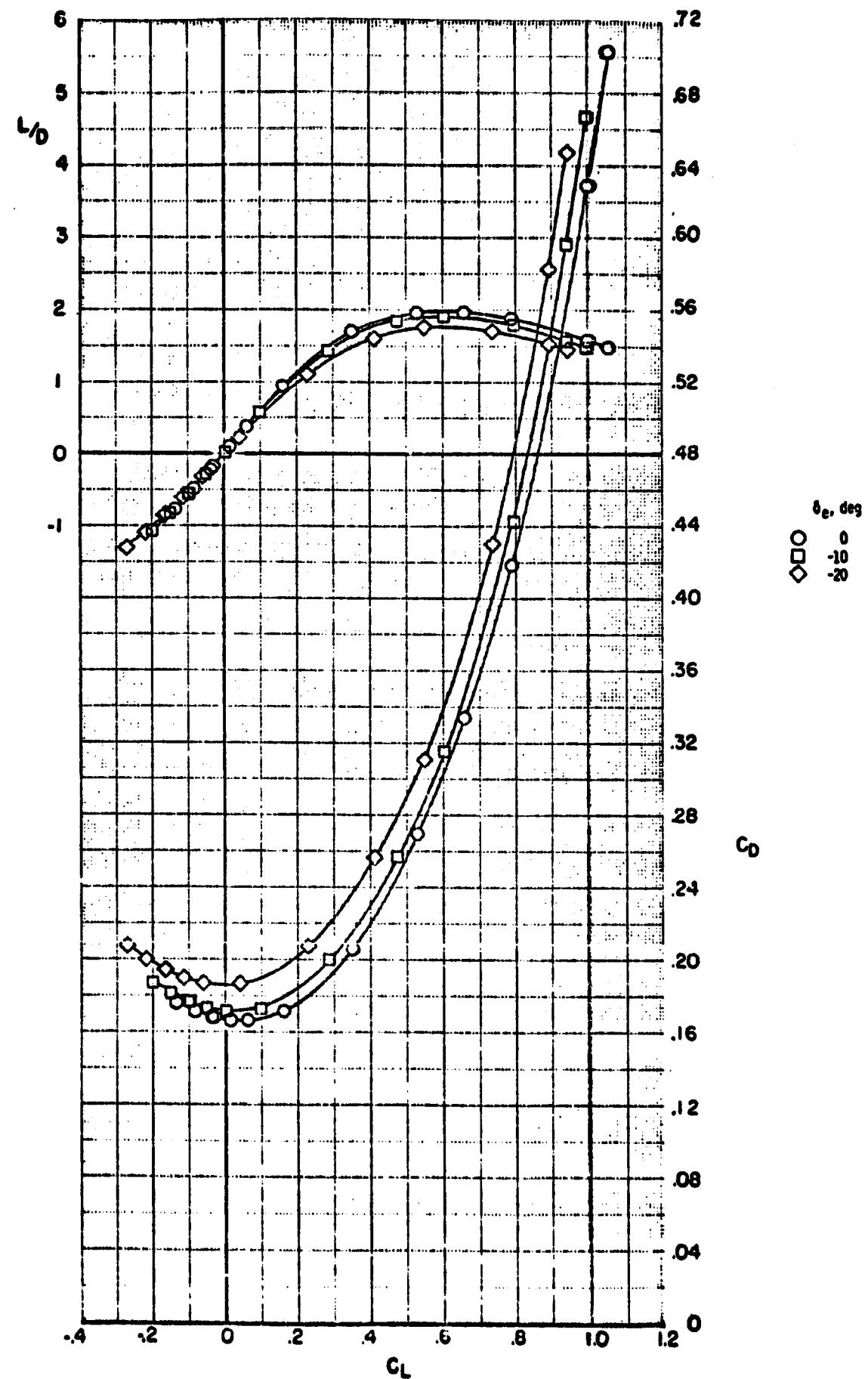
(a) Concluded.

Figure 3. - Continued.

(b) M=2.0

Figure 3. - Continued.

22

(b) Concluded.

Figure 3. - Continued.

23
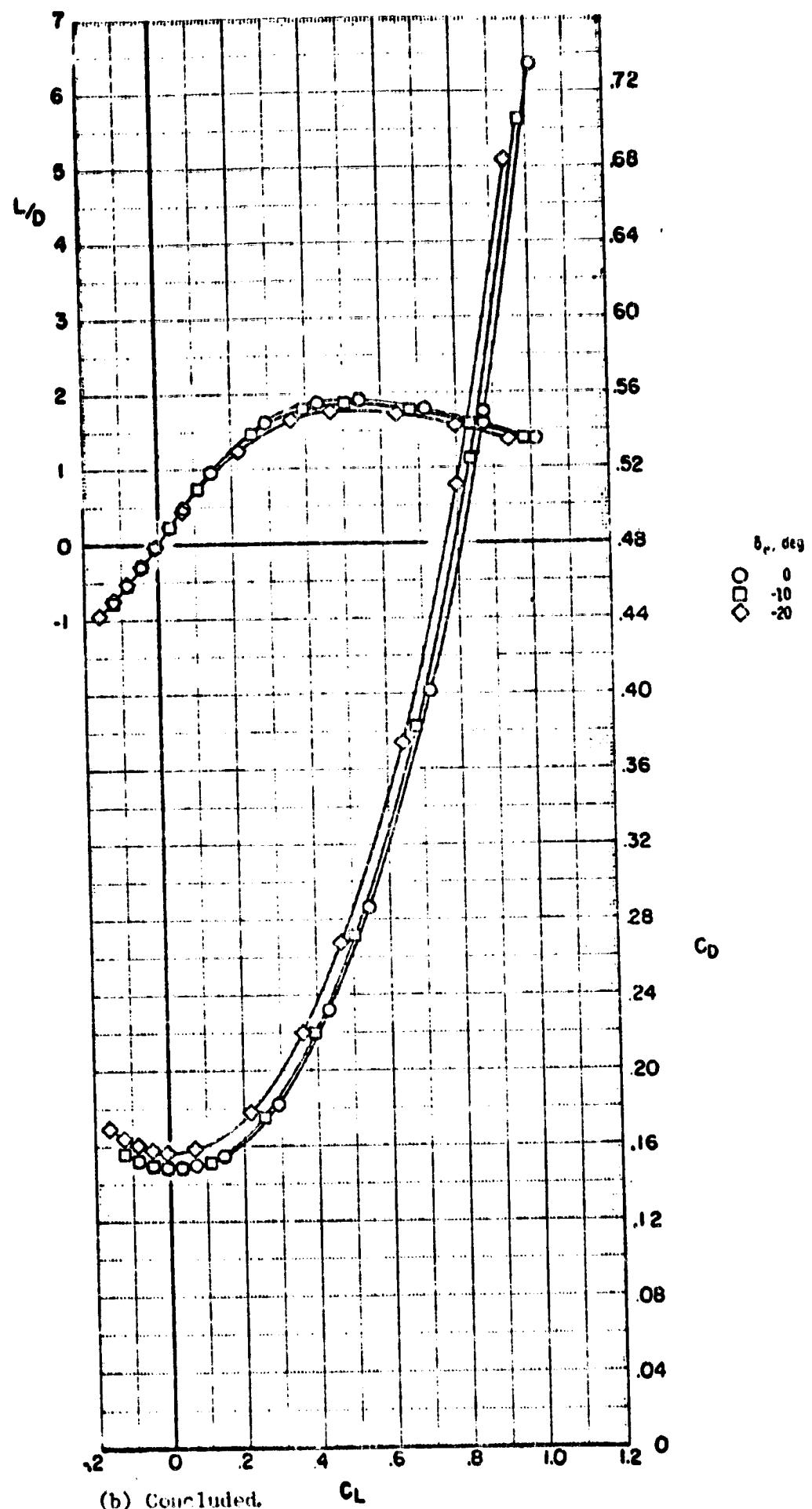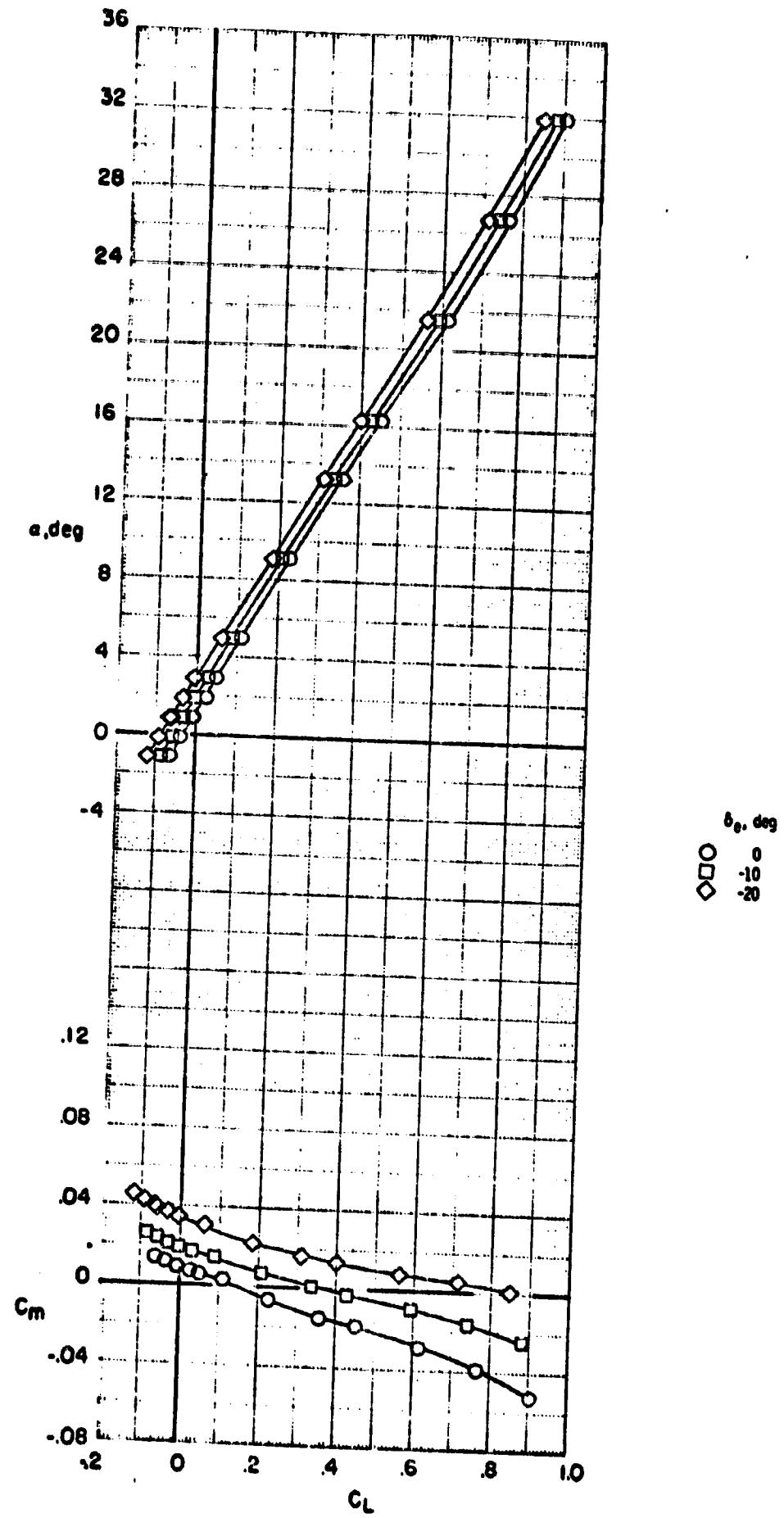
(c) M=2.5

Figure 3. - Continued.
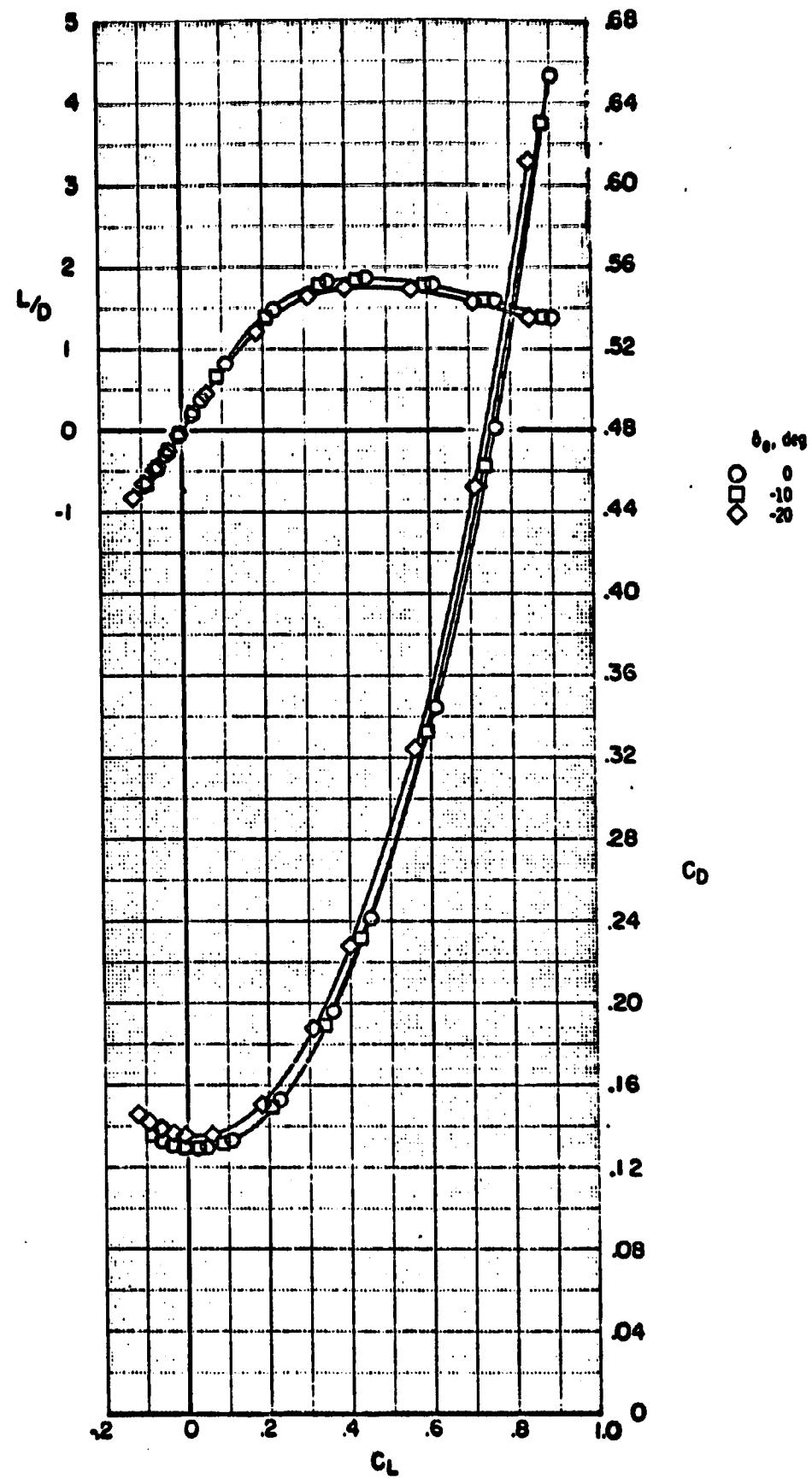
(c) Concluded.
Figure 3. - Concluded.
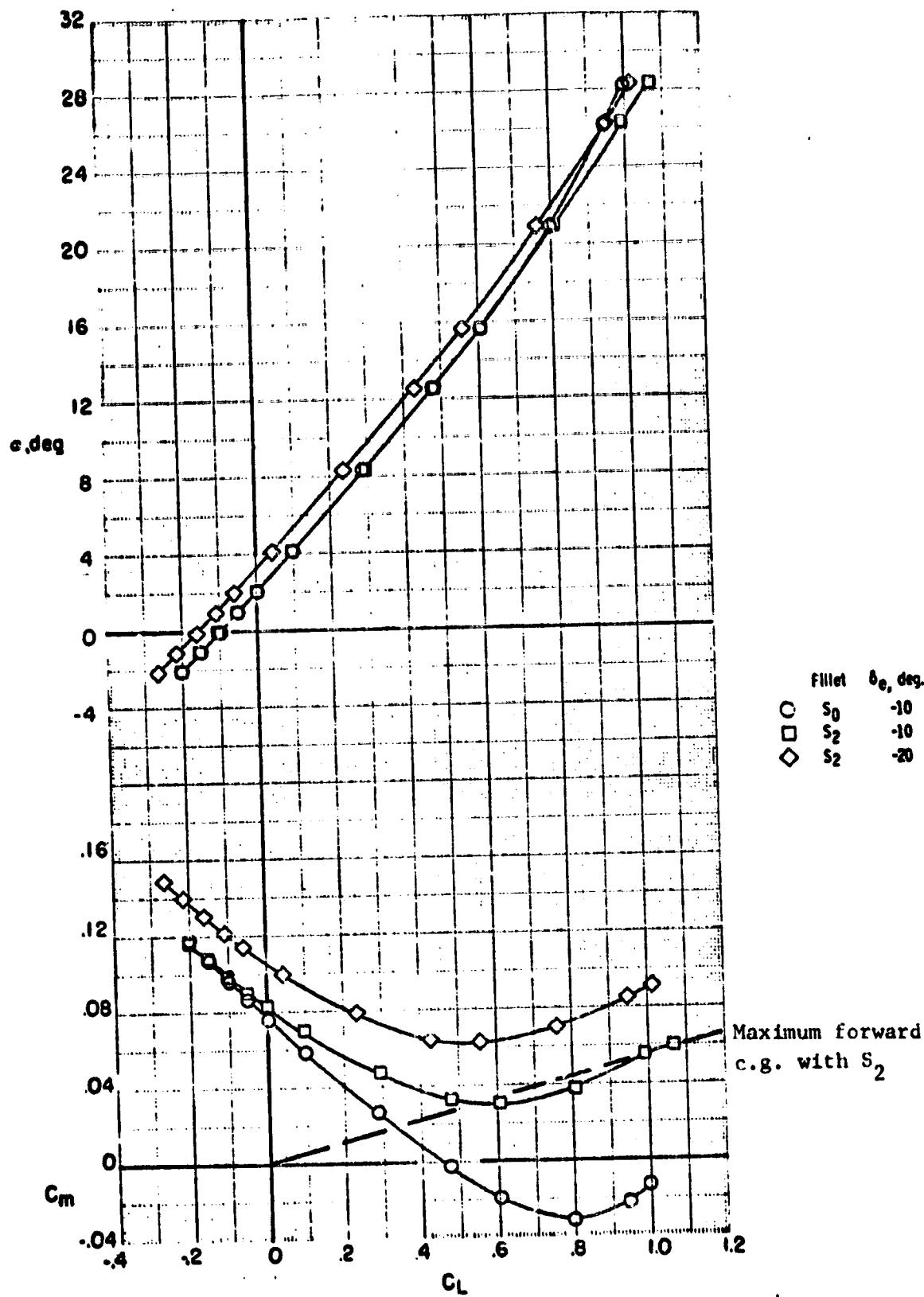
(a) M=1.5
Figure 4. – Effect of fillet S_2 on longitudinal aerodynamic characteristics of configuration B_1WVS_oEF. $\delta_{BF} = -11.7°$; $\delta_{SB} = 55°$.

(a) Concluded.
Figure 4. - Continued.

Fillet | δ_e, deg.
○ | S_0 | -10
□ | S_2 | -10
◇ | S_2 | -20

Maximum forward c.g. with S_2
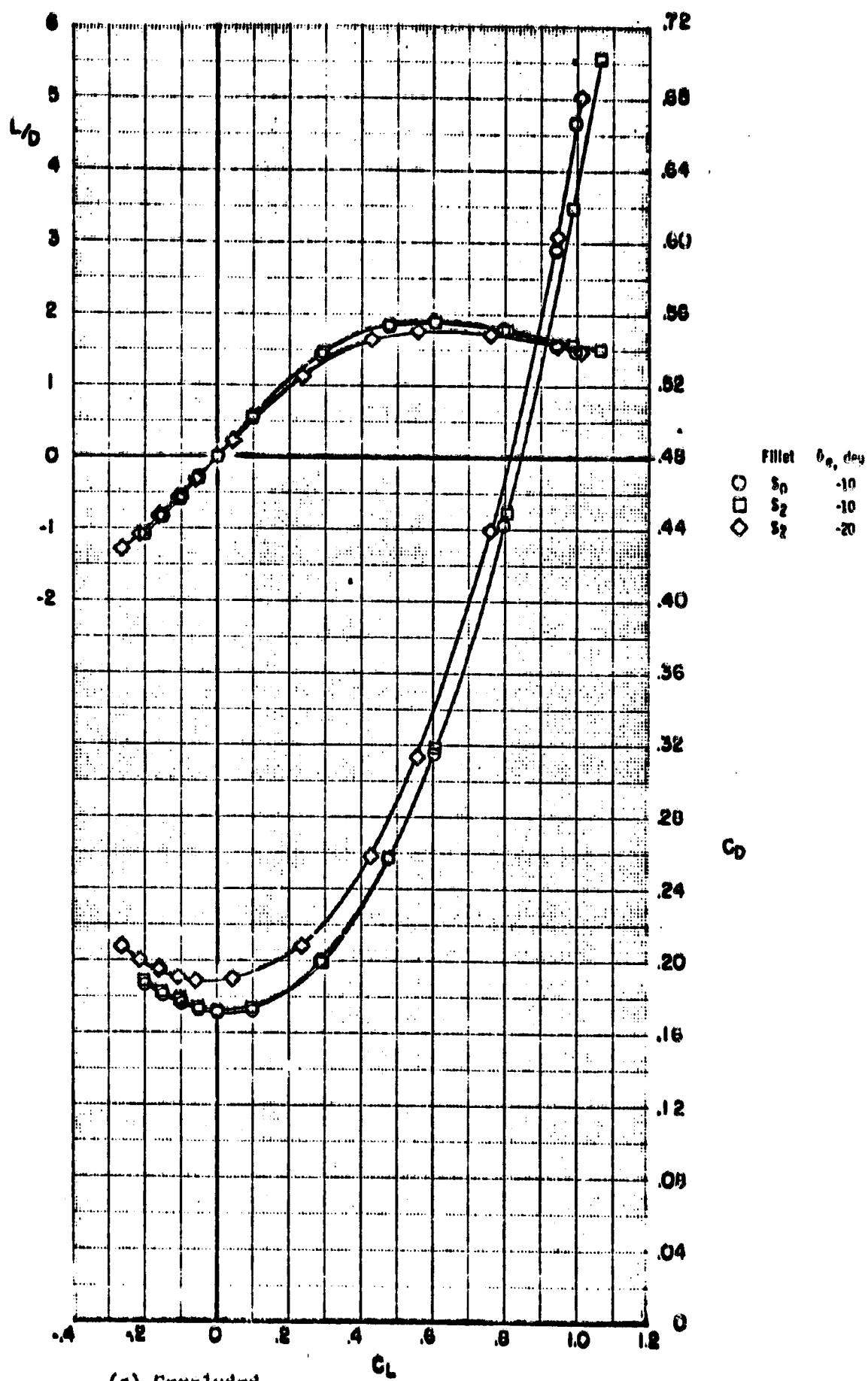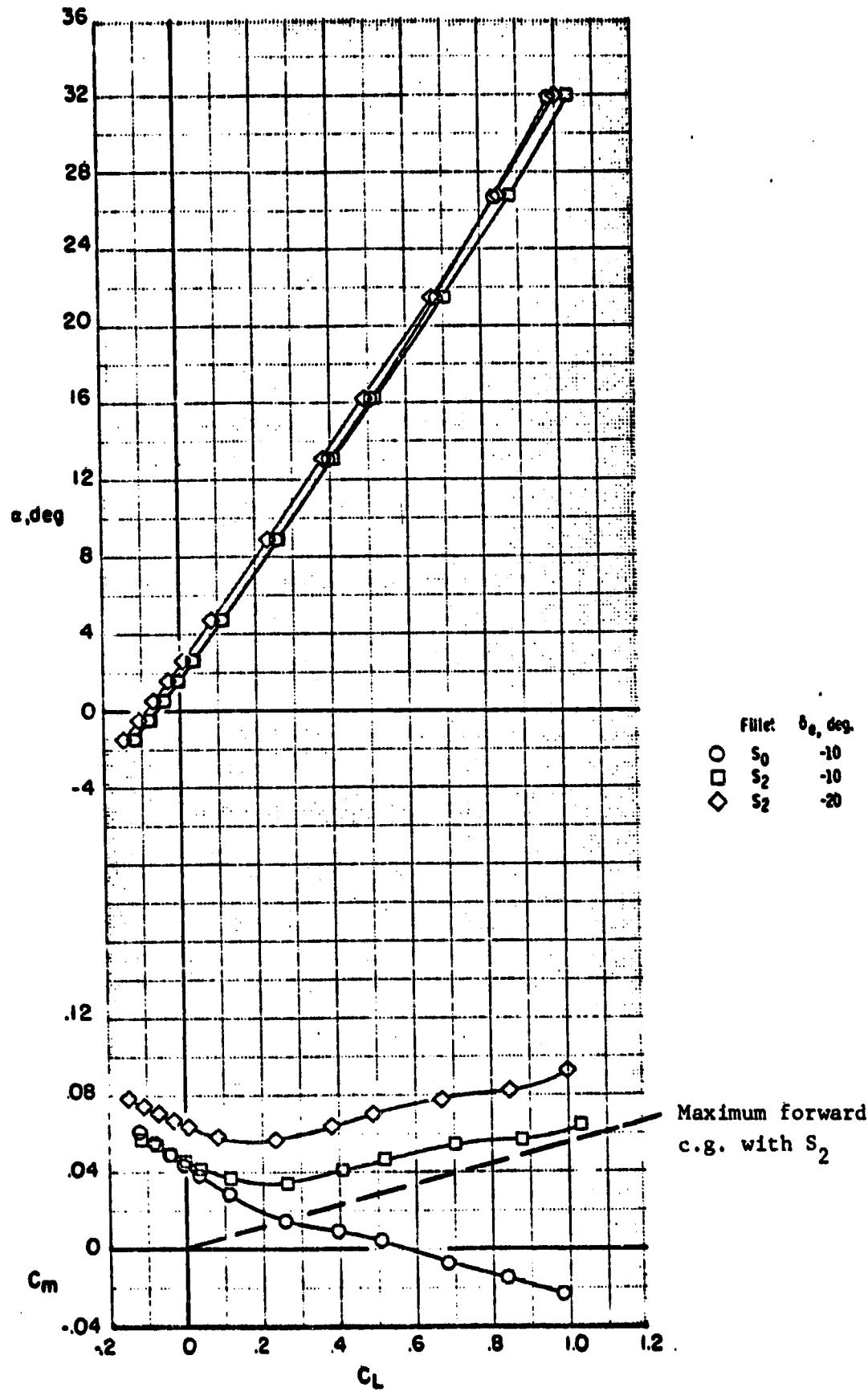
(b) M=2.0

Figure 4. - Continued.

(b) Concluded.
Figure 4. - Continued.

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Fillet δ_b, deg.

	Fillet	δ_b, deg.
○	S_0	-10
□	S_2	-10
◇	S_2	-20

Maximum forward c.g. with S_2
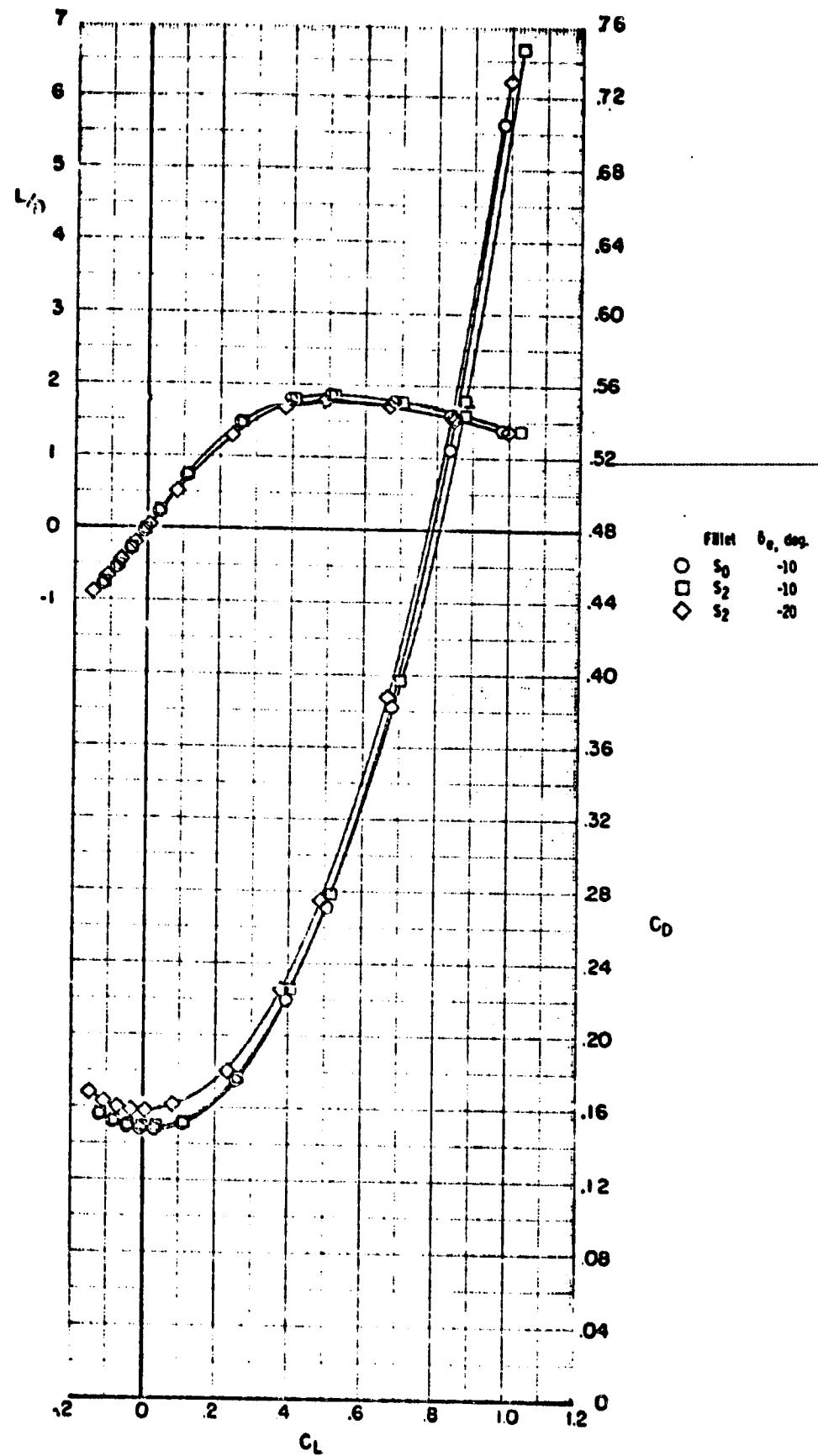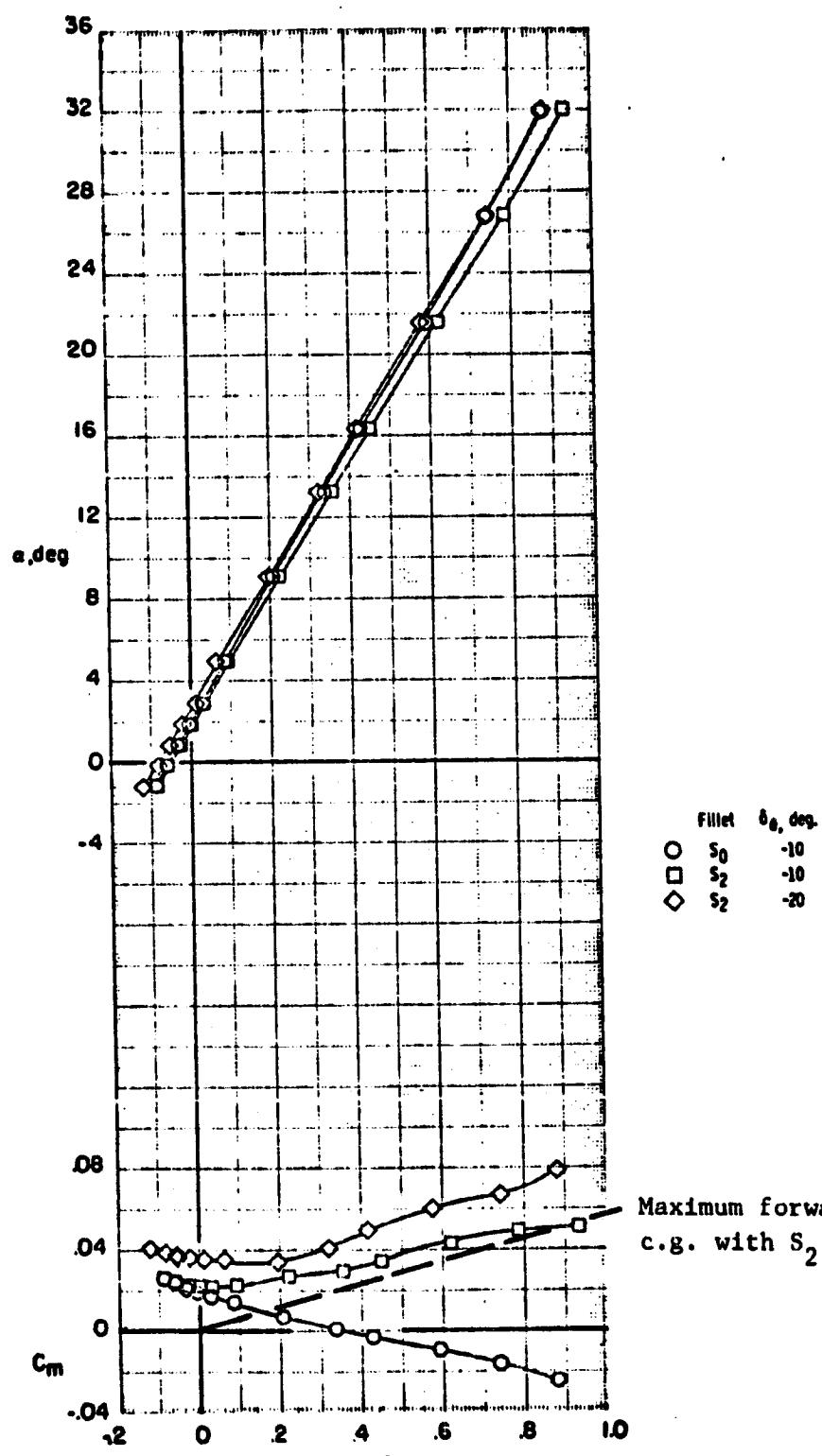
(c) M=2.5

Figure 4. - Continued.

30
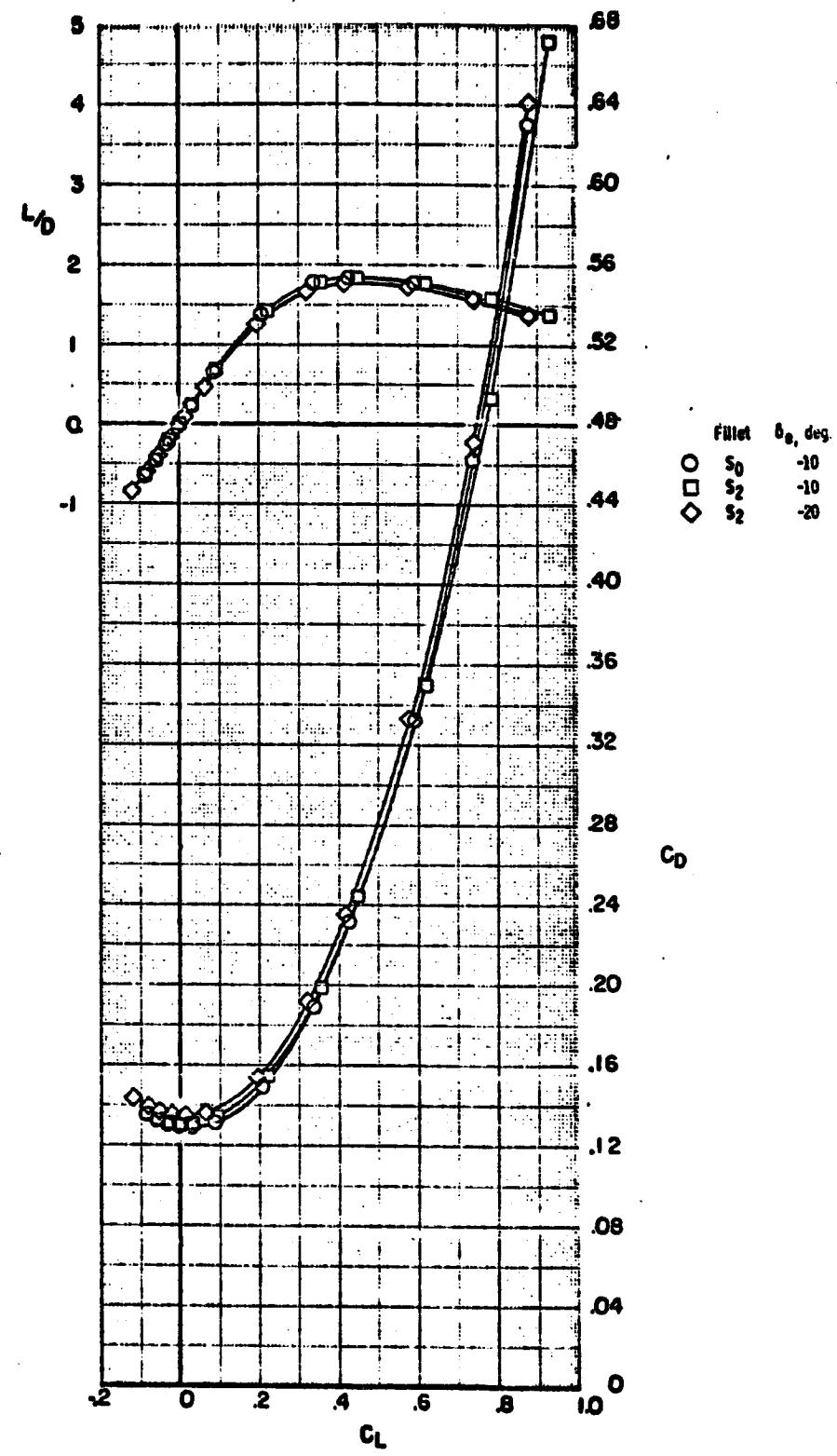
(c) Concluded.

Figure 4. - Concluded.
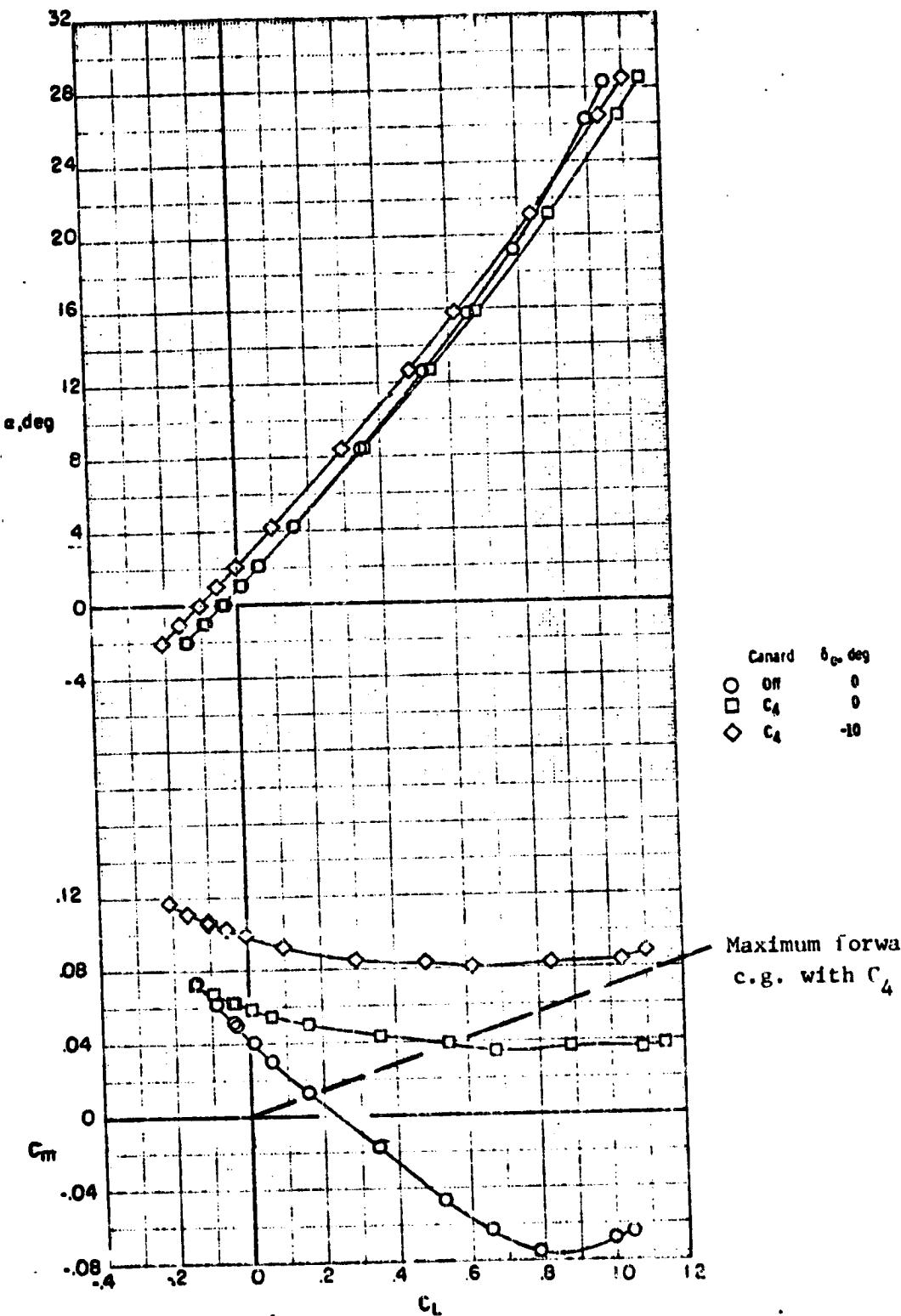
(a) M=1.5

Figure 5. - Effect of canard C_4 on the longitudinal aerodynamic characteristics of configuration B_1WVS_0EF $\delta_r=-11.7^o$; $\delta_{SB}=55^o$

(a) Concluded.

Figure 5. - Continued.

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Canard   δₐ, deg

○ Off   0
□ C₄   0
◇ C₄   -10

Maximum forward
c.g. with C_4

(b) M=2.0

Figure 5. - Continued.

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Canard	δ_{e_L} deg
○ Off	0
□ C_4	0
◇ C_4	-10

(b) Concluded.

Figure 5. - Continued.

35
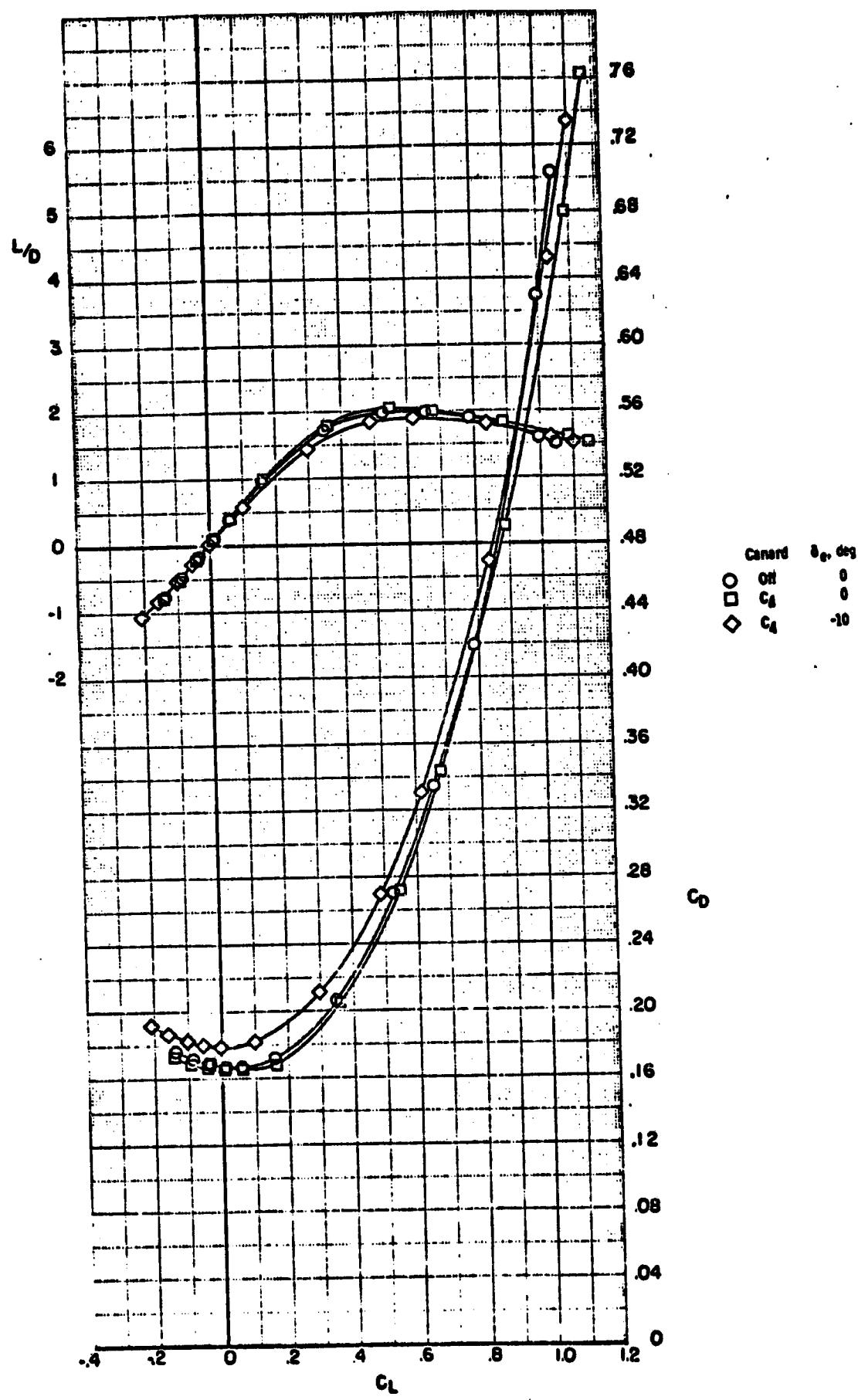
(c) M=2.5

Figure 5. - Continued.

(c) Concluded.

Figure 5. - Concluded.
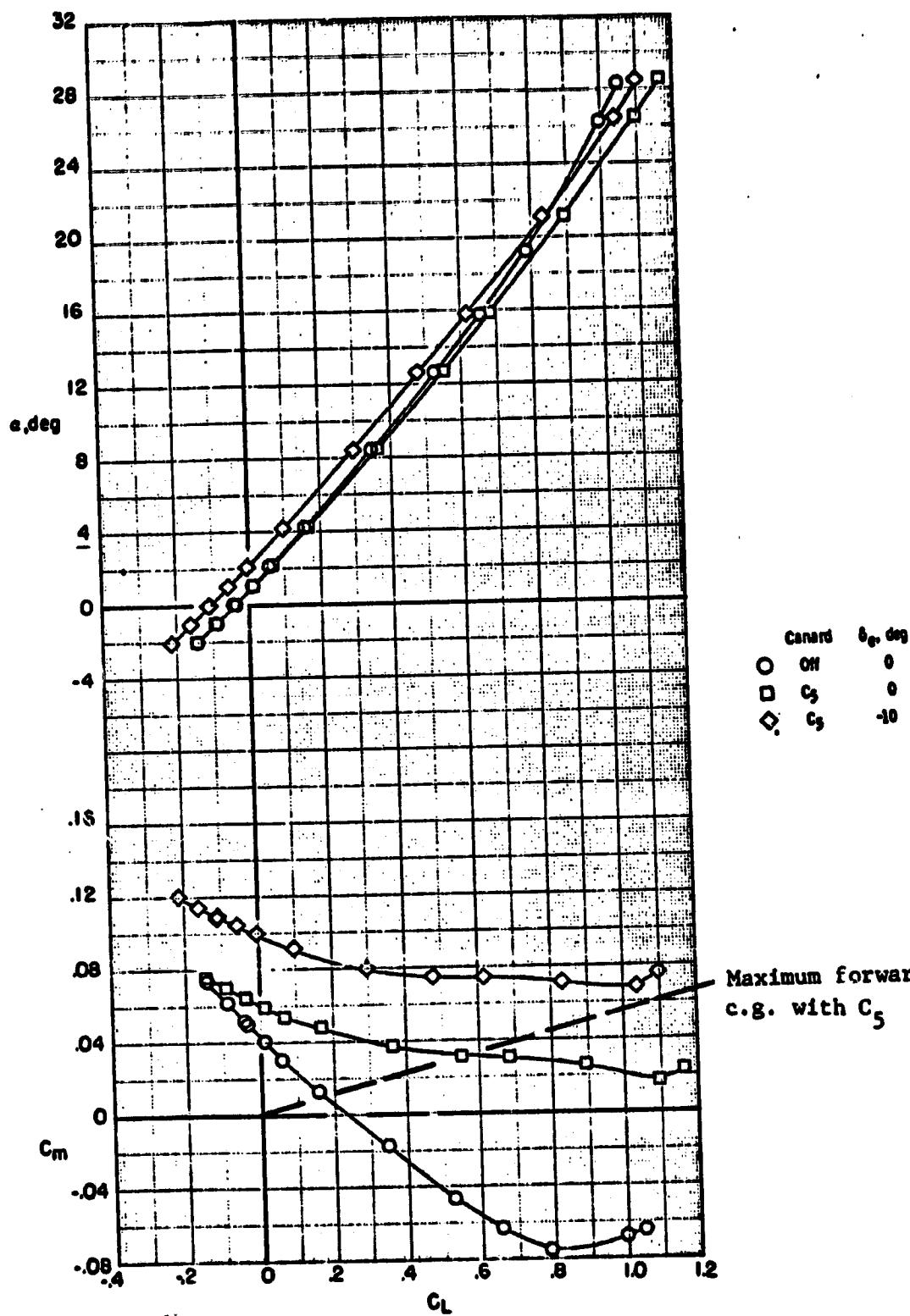
(a) M=1.5

Figure 6. - Effect of canard C_5 on the longitudinal aerodynamic characteristics of configuration $B_1 WVS_0 EF$. $\delta_{BF} = -11.7°$; $\delta_{SB} = 55°$

Canard	δ_q, deg
Off	0
C_5	0
C_5	-10

(a) Concluded.

Figure 6. - Continued.

39
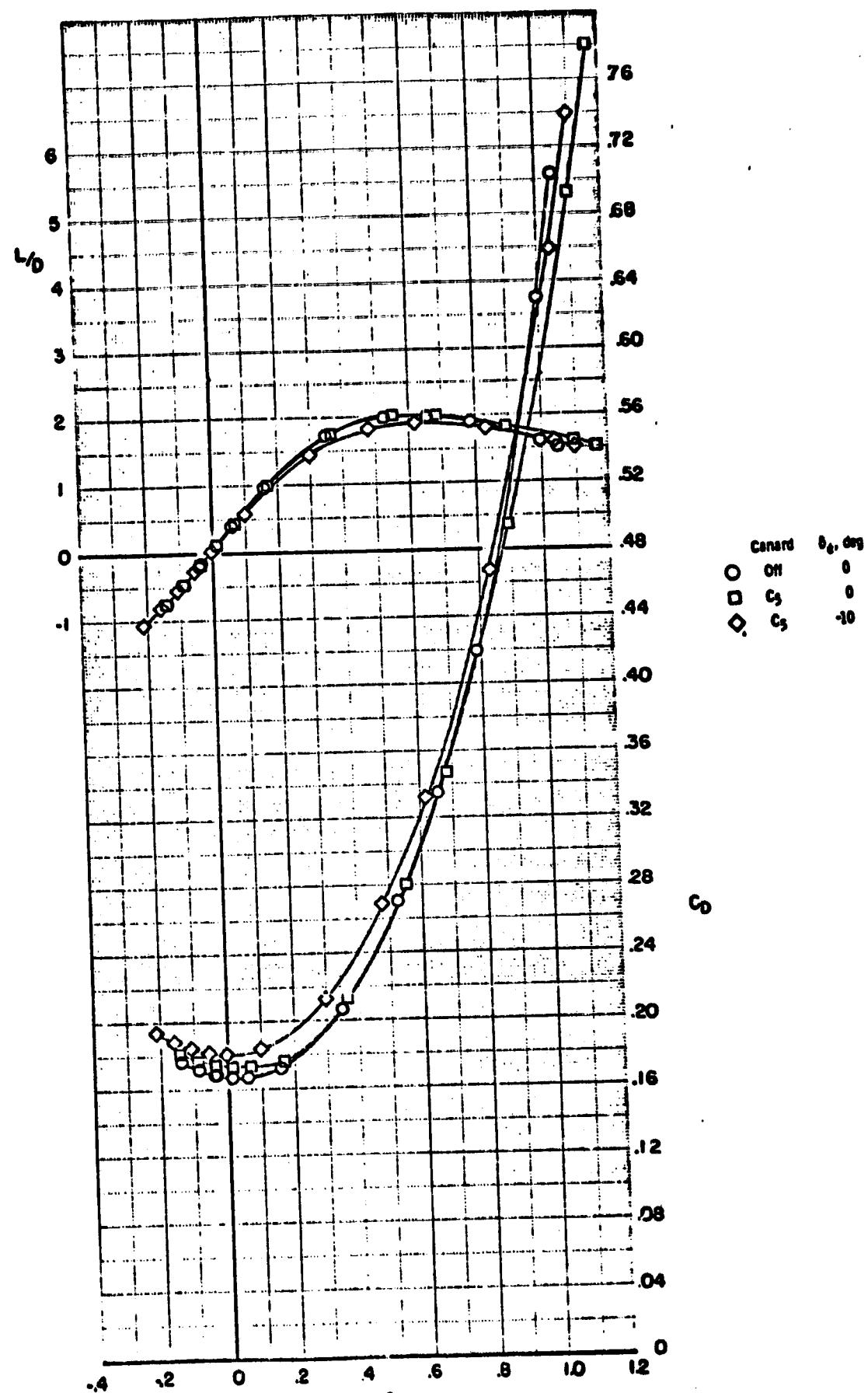
(b) M=2.0

Figure 6. - Continued.
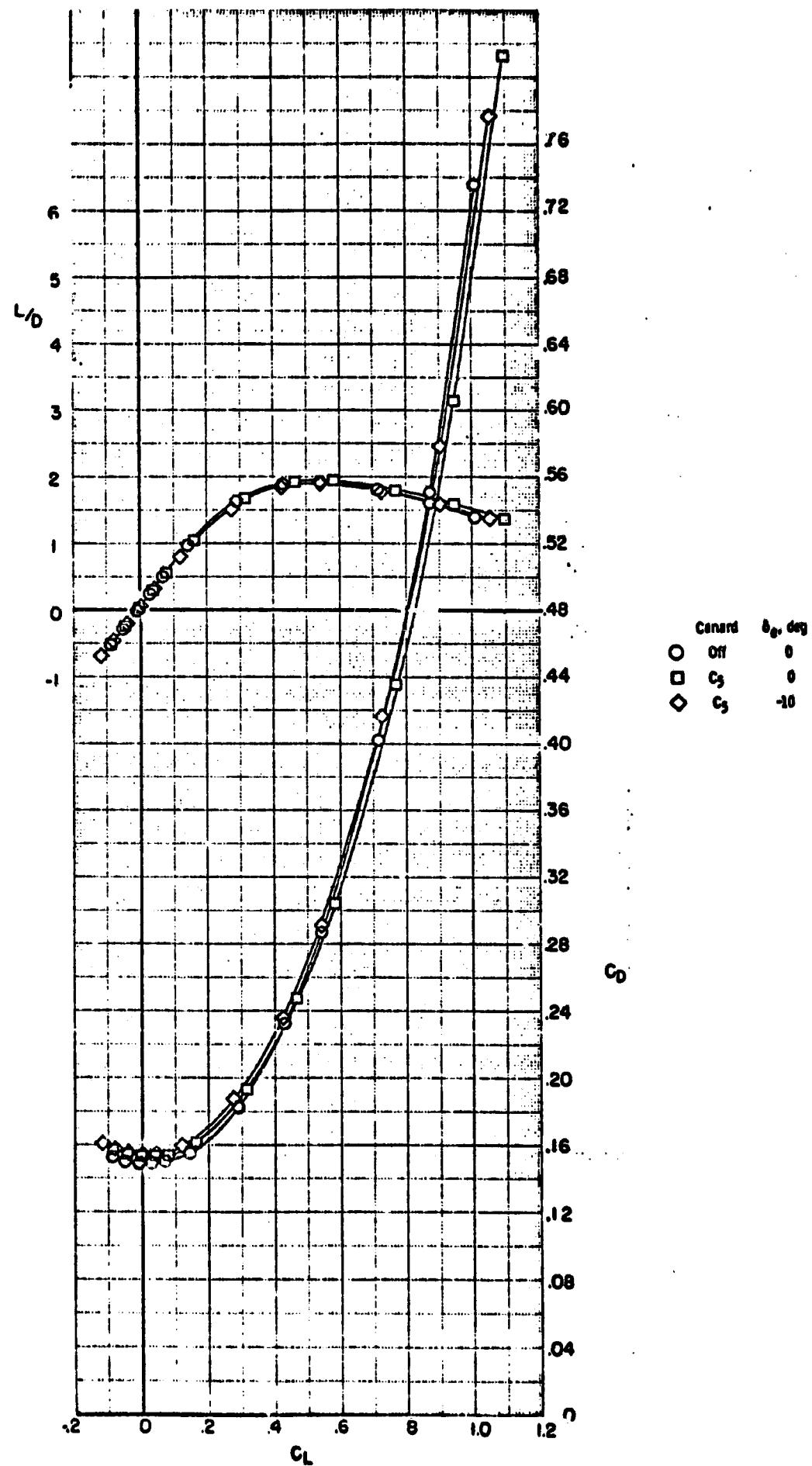
(b) Concluded.
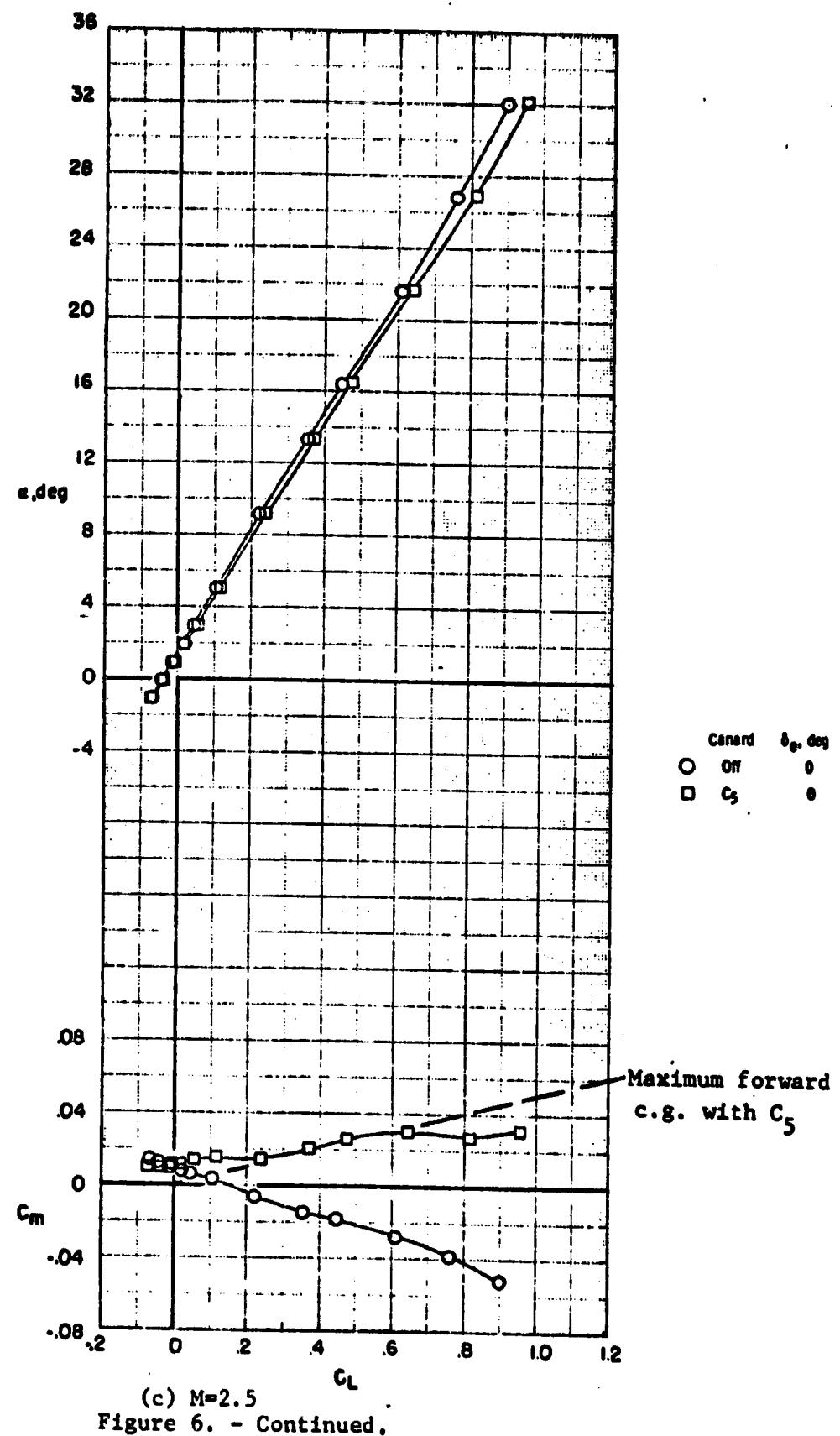
Figure 6. – Continued.

(c) M=2.5

Figure 6. – Continued.
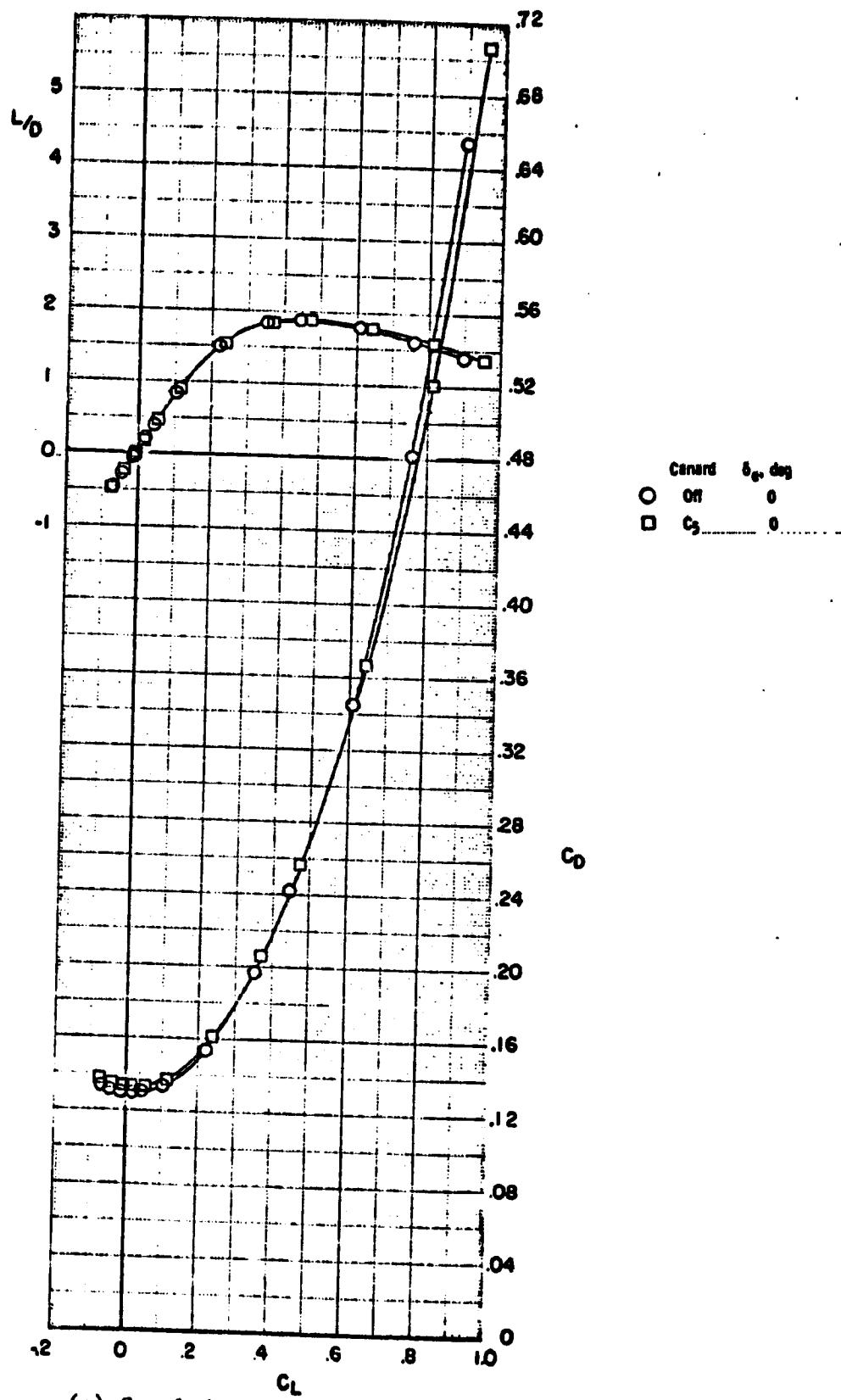
(c) Concluded.
Figure 6. - Concluded.

	Canard	δ_e, deg
○	C_4	0
□	C_5	0
◇	C_4	−10
△	C_5	−10
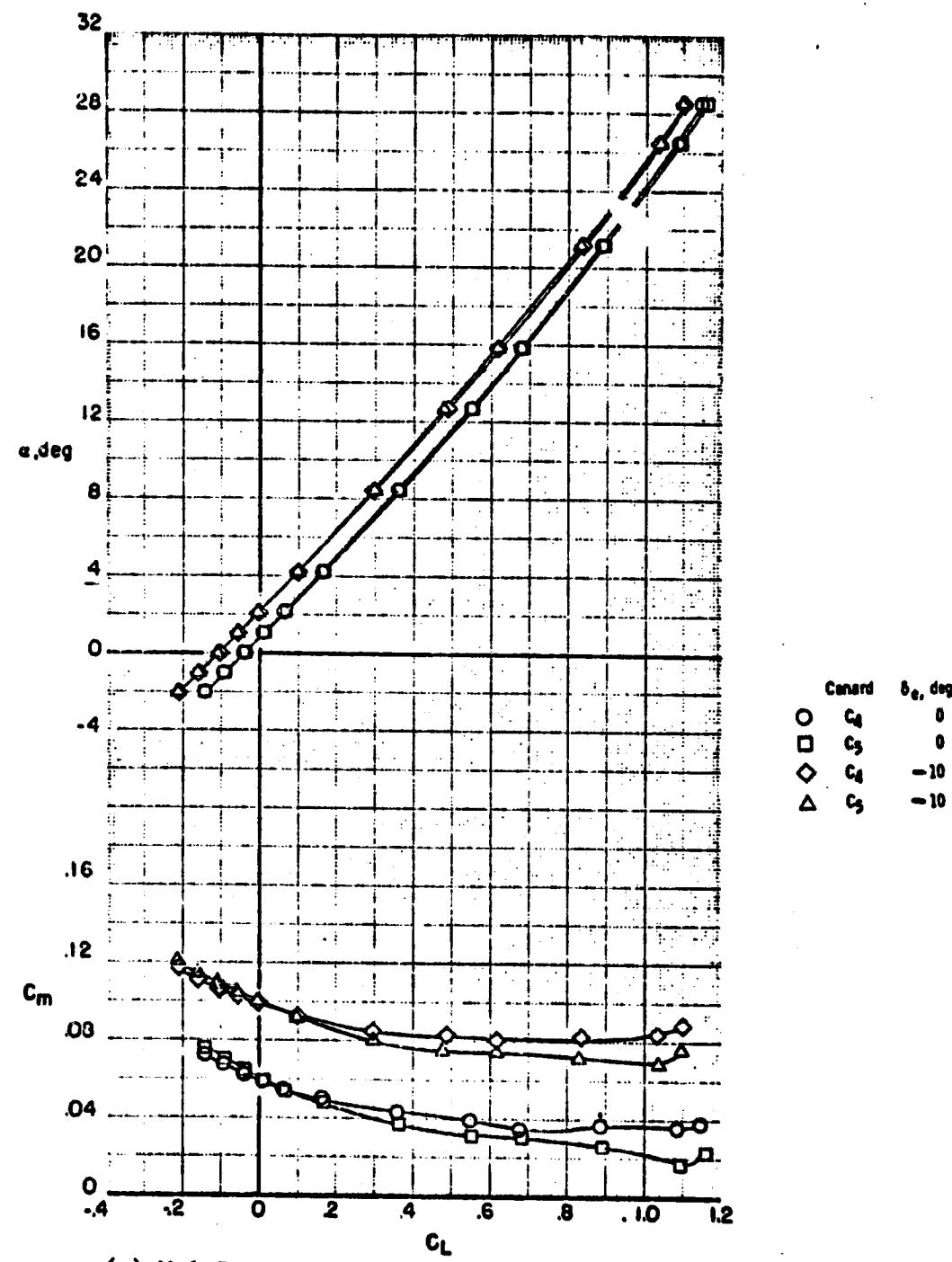
(a) M=1.5

Figure 7. - Longitudinal aerodynamic characteristics of configurations $B_1 WVS_0 C_4 EF$ and $B_1 WVS_0 C_5 EF$. δ_{BF}=-11.7°; δ_{SB}=55°

(a) Concluded.

Figure 7. - Continued.

45
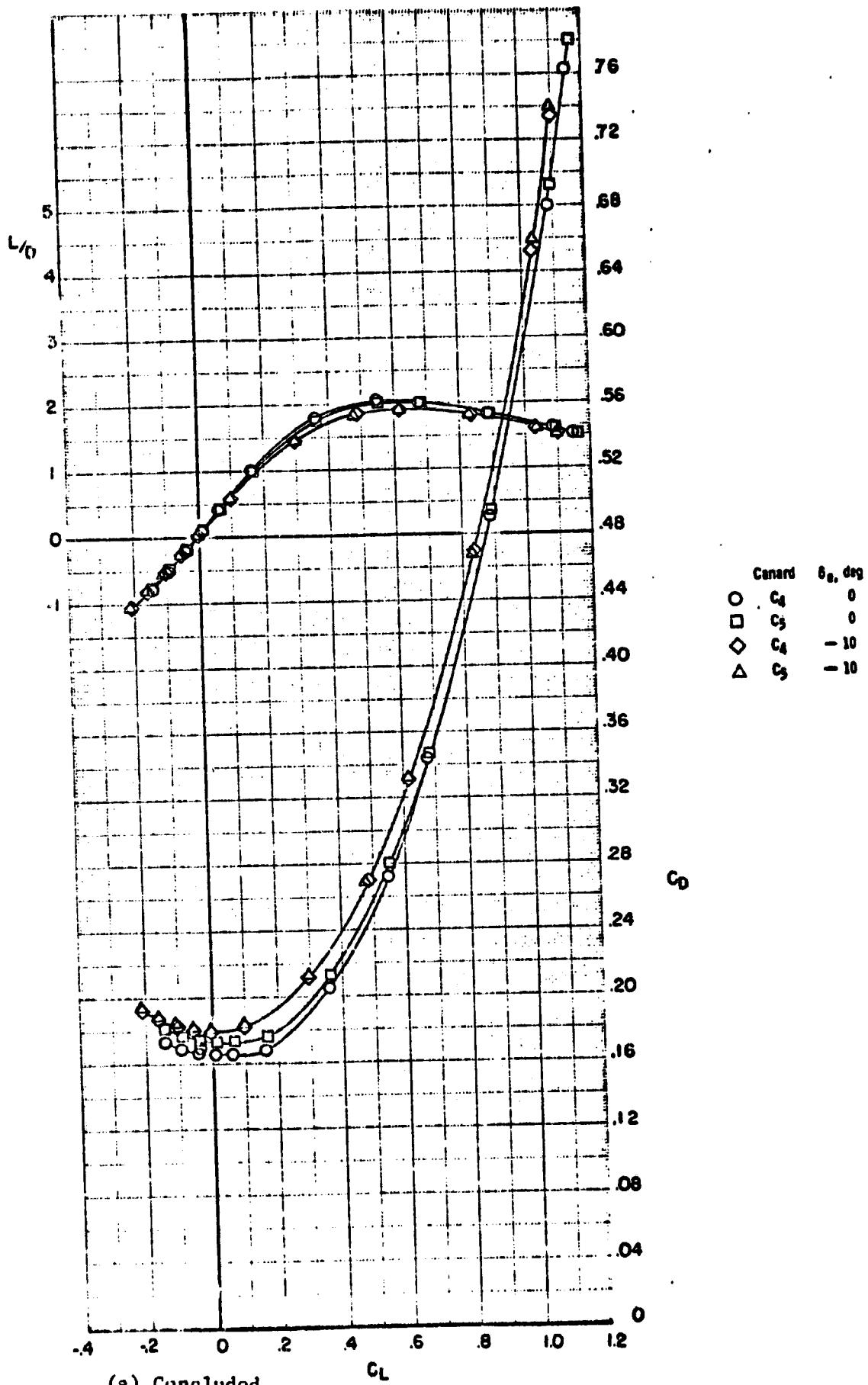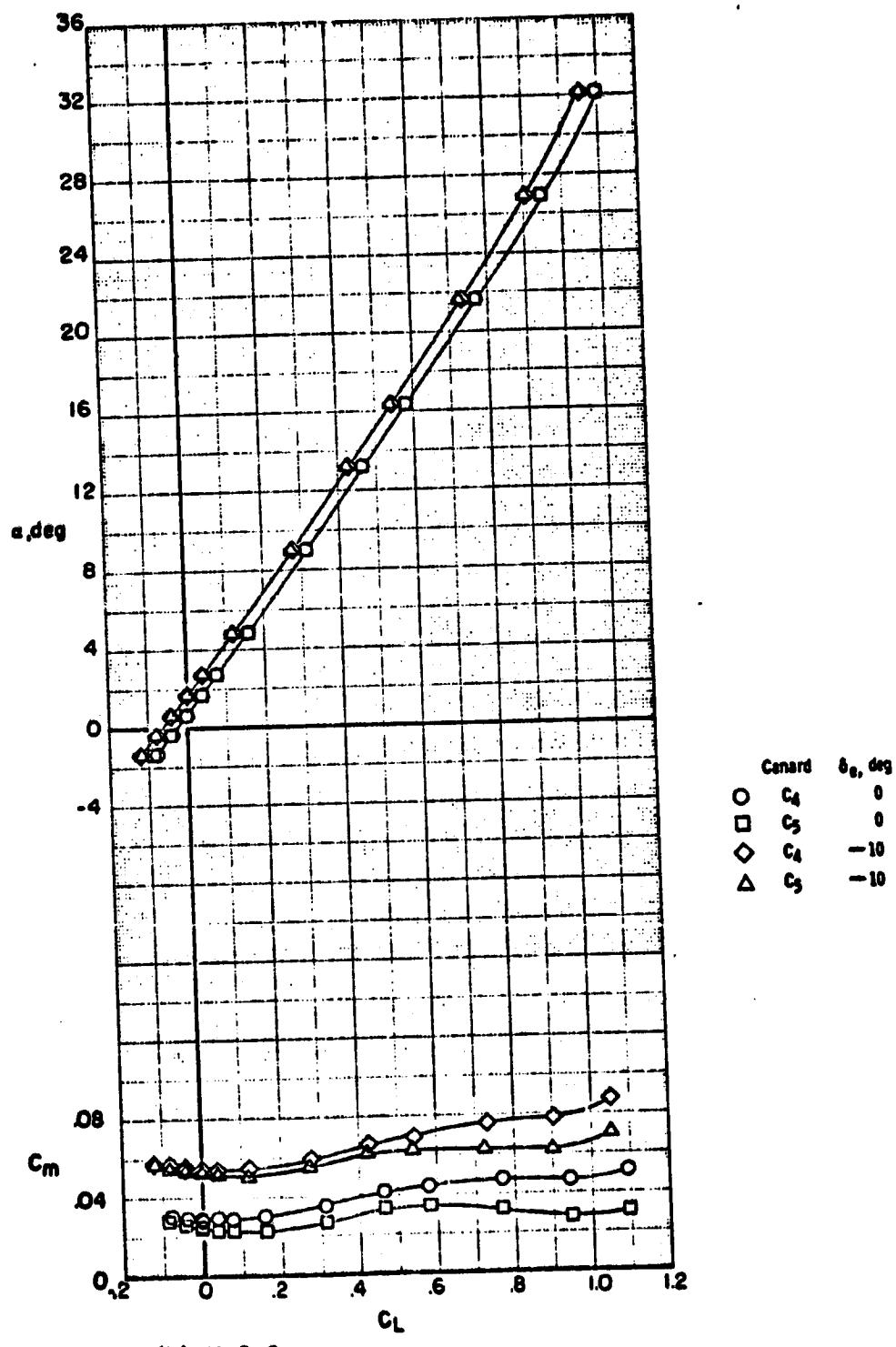
(b) M=2.0

Figure 7. - Continued.
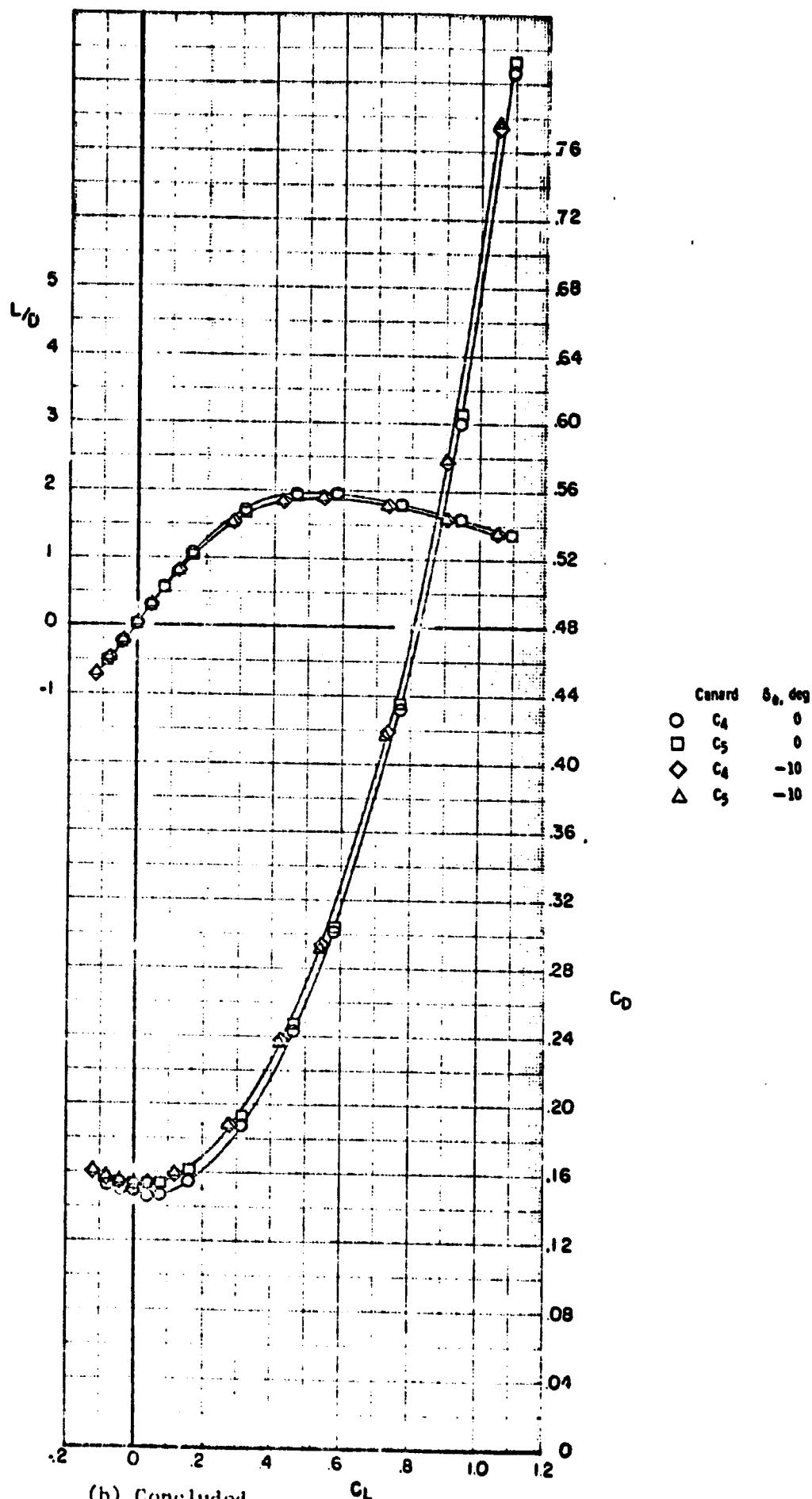
(b) Concluded.
Figure 7. – Continued.
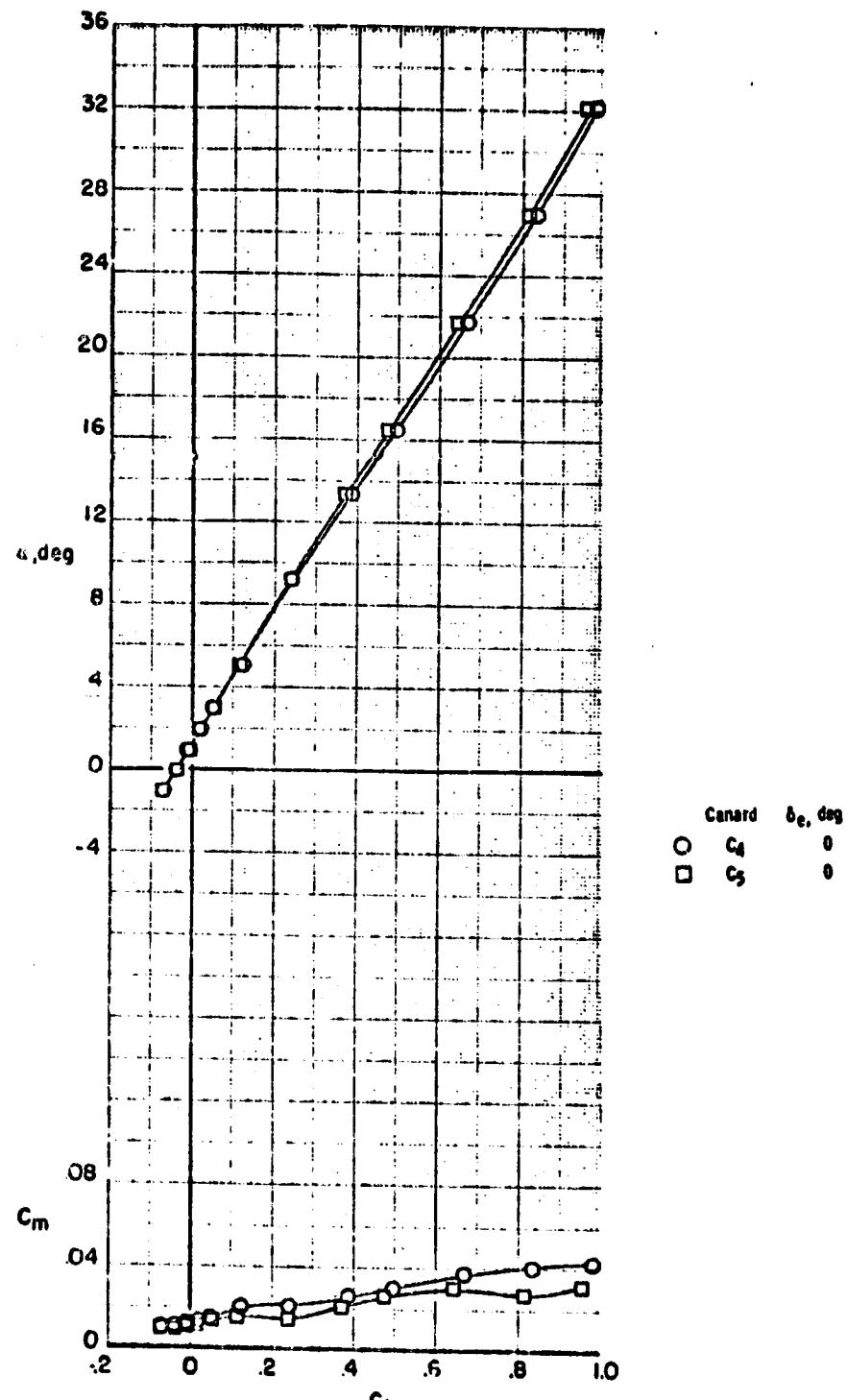
(c) M=2.5

Figure 7. - Continued.
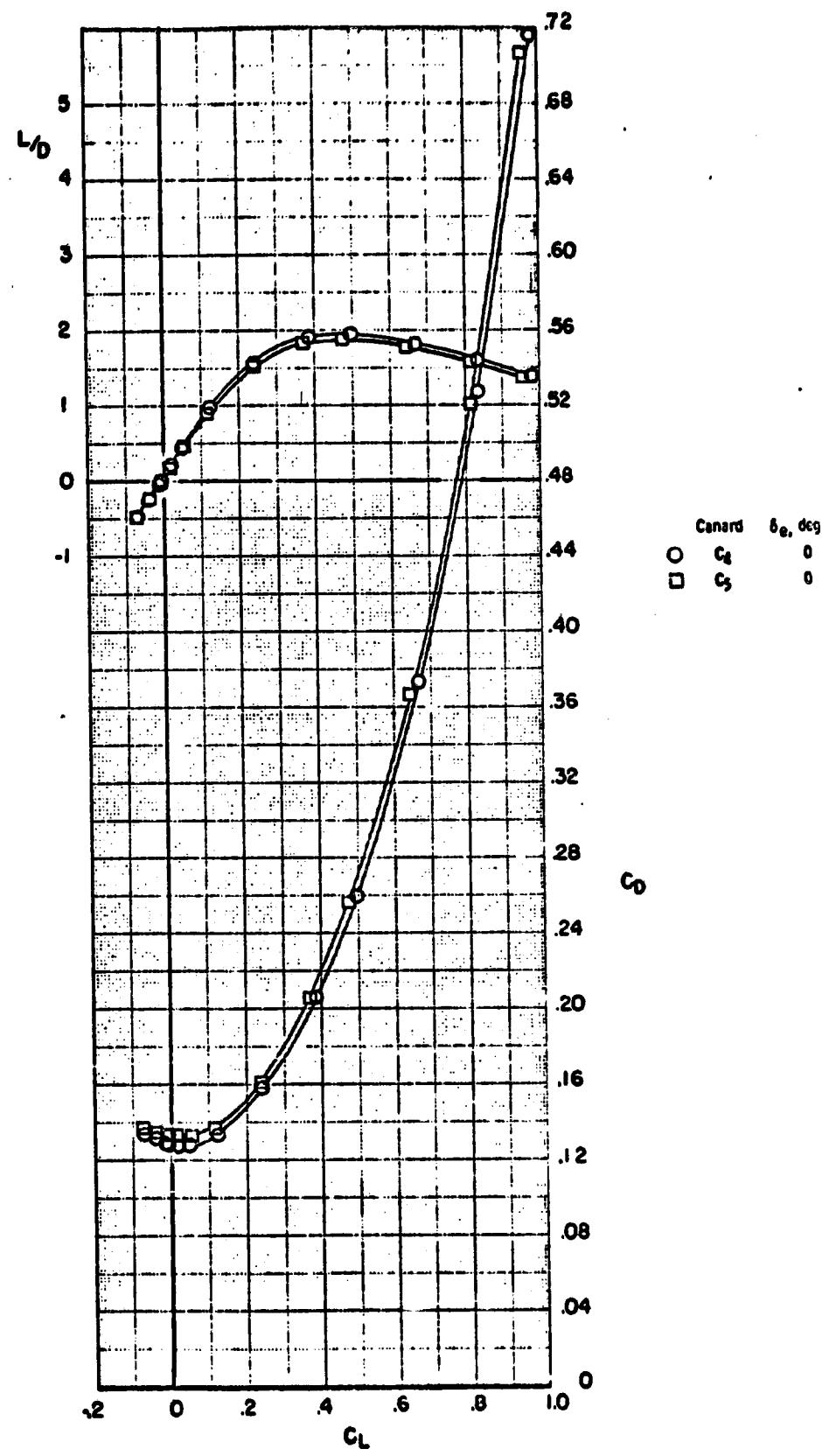
(c) Concluded.
Figure 7. - Concluded.
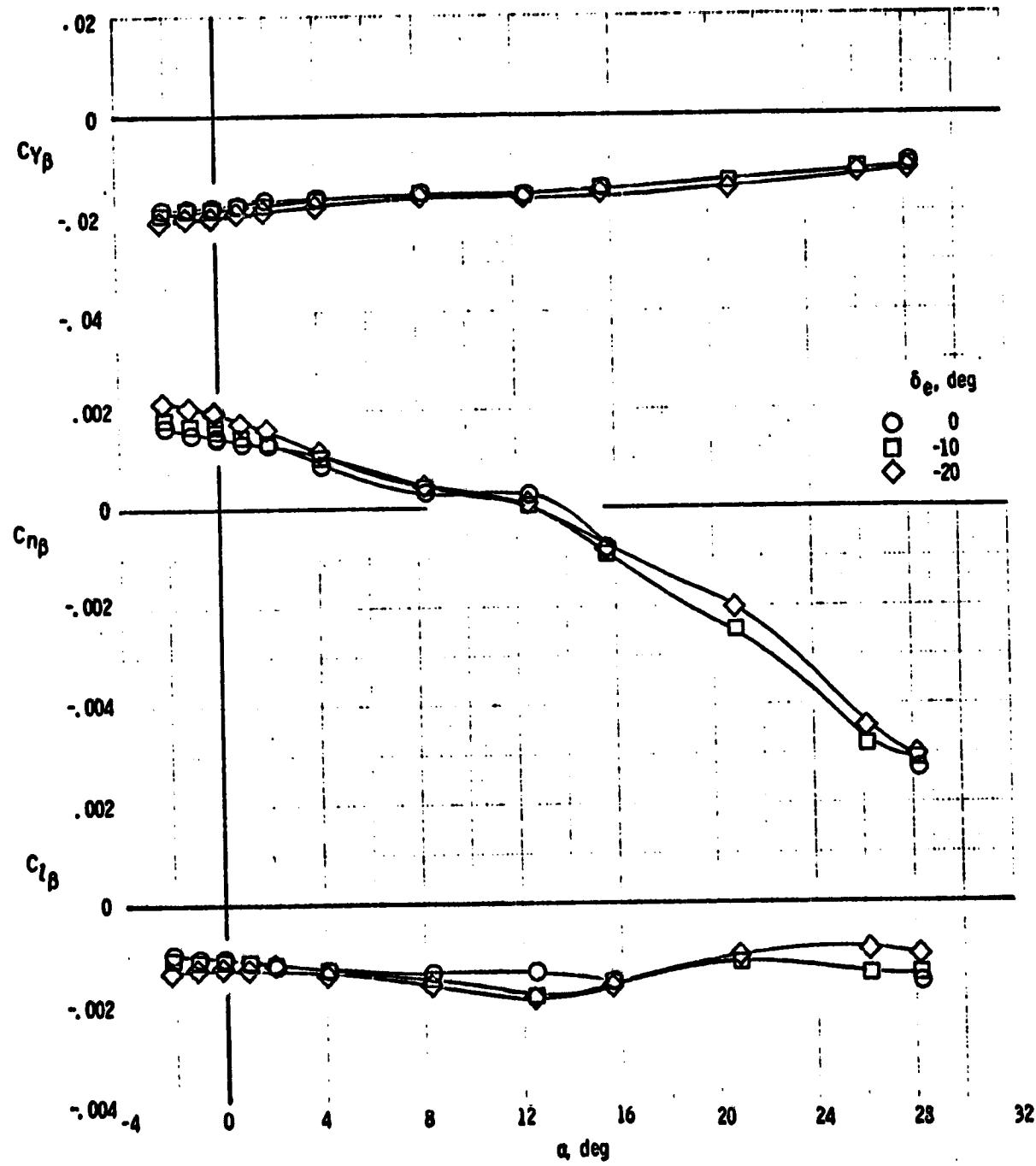
(a) M=1.5

Figure 8. - Lateral-directional characteristics
for configuration B_1WVS_0EF $\delta_{BF}=-11.7^o$; $\delta_{SB}=55^o$

50
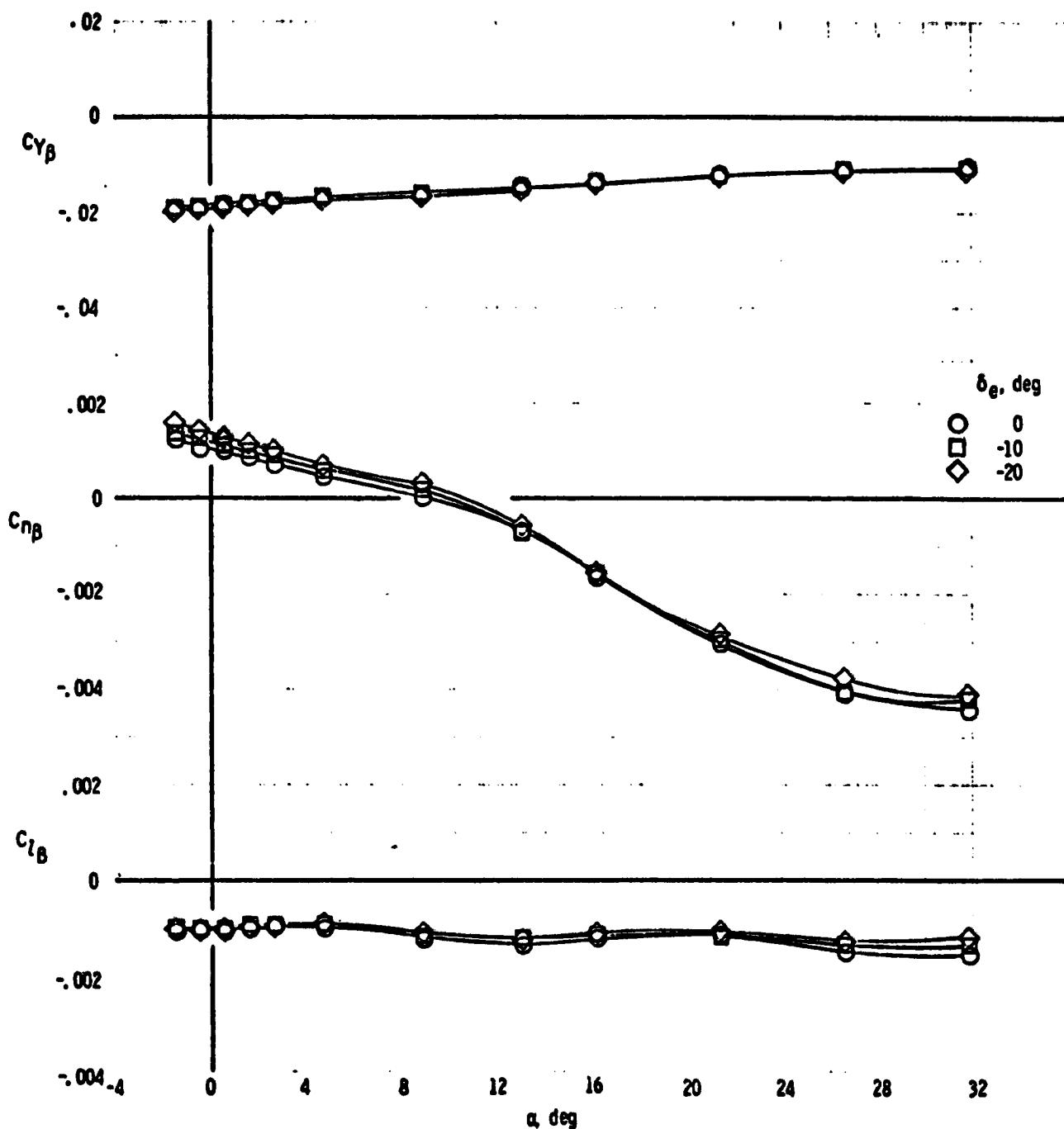
(b) M=2.0

Figure 8. - Continued.
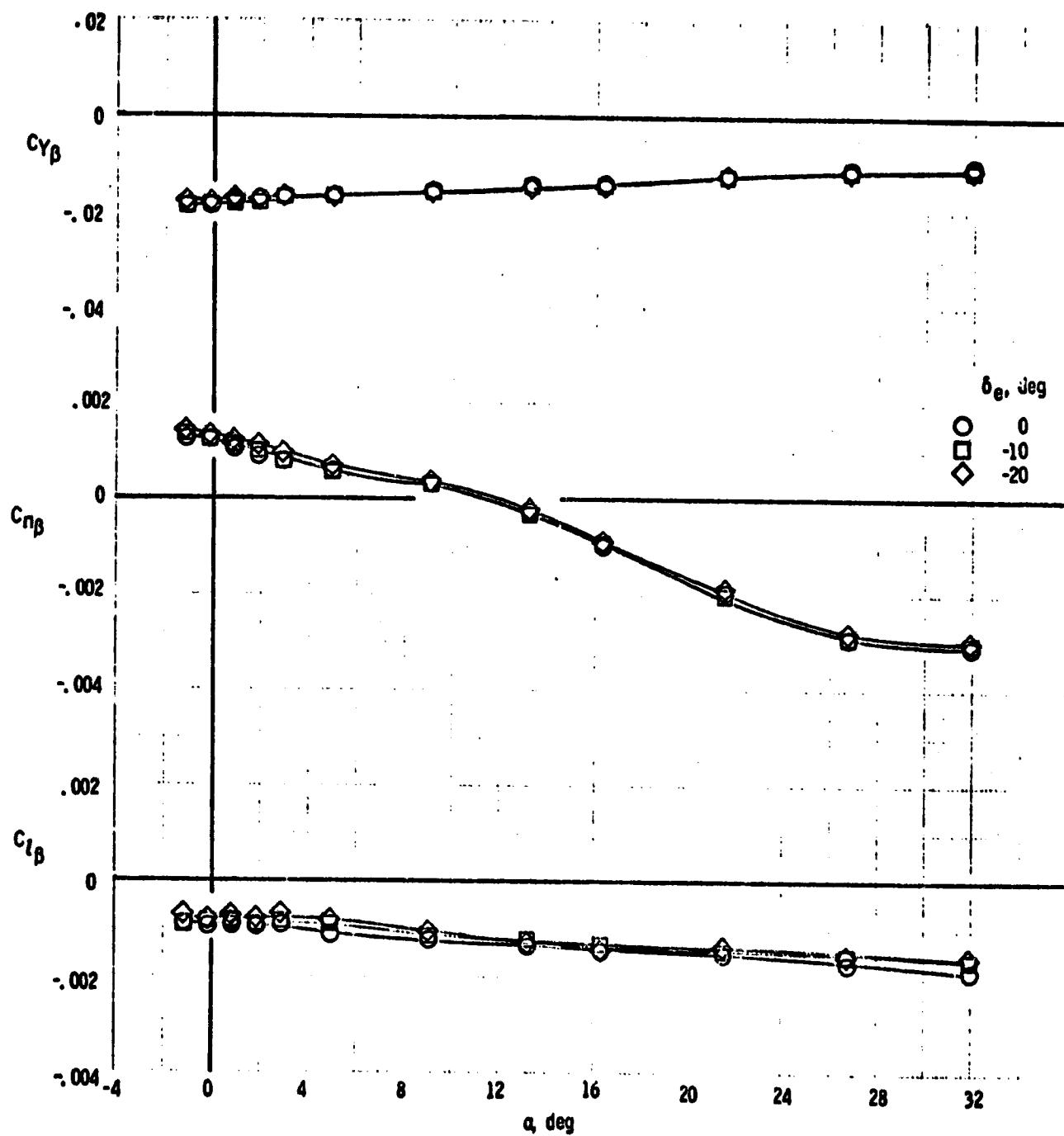
(c) M=2.5

Figure 8. – Concluded.
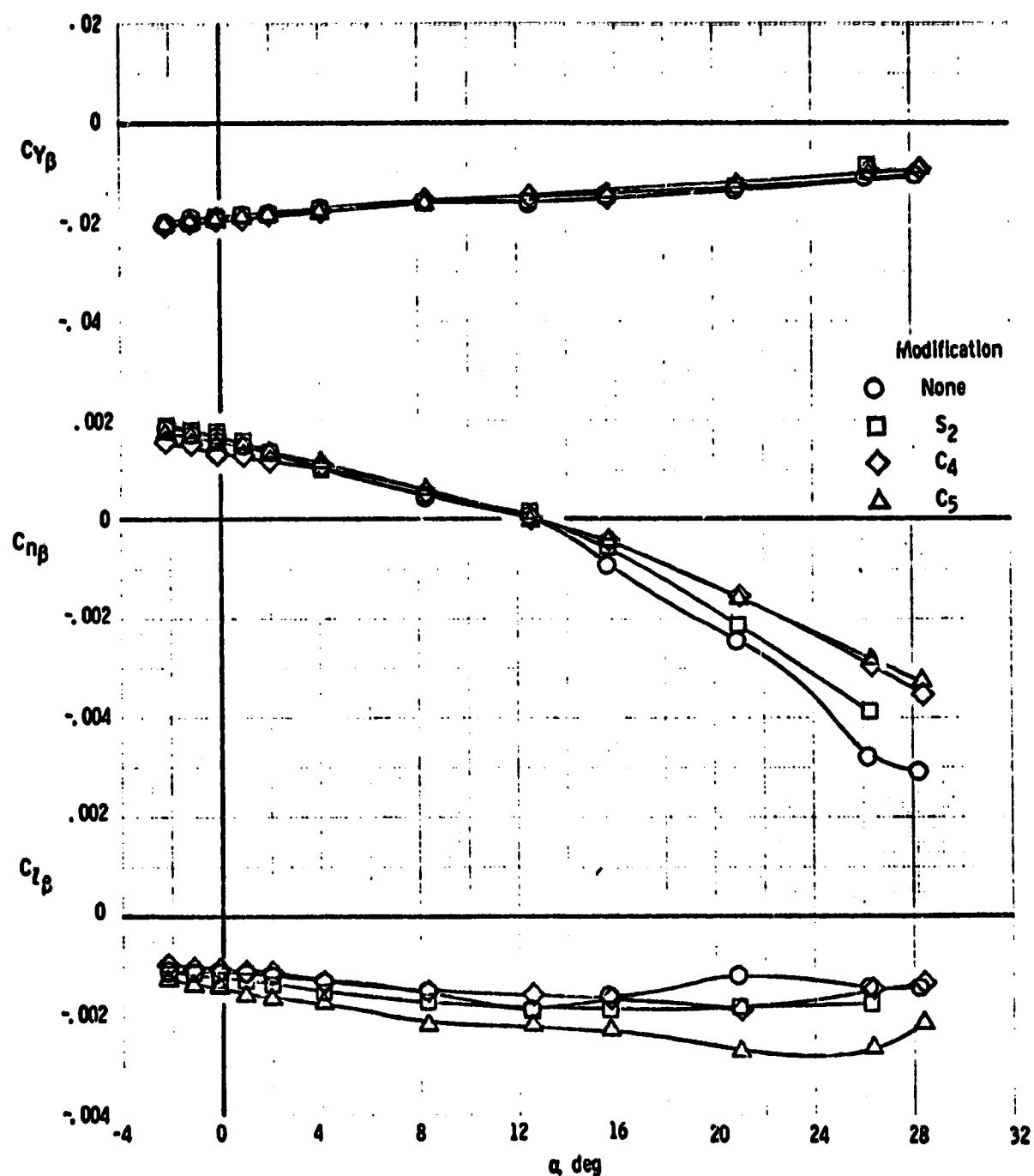
(a) M=1.5

Figure 9. - Effect of fillet and canard modifications
on lateral-directional characteristics for configuration
$B_1WVSoEF$. $\delta_e = -10^{\circ}$; $\delta_{BF} = -11.7^{\circ}$; $\delta_{SB} = 55^{\circ}$
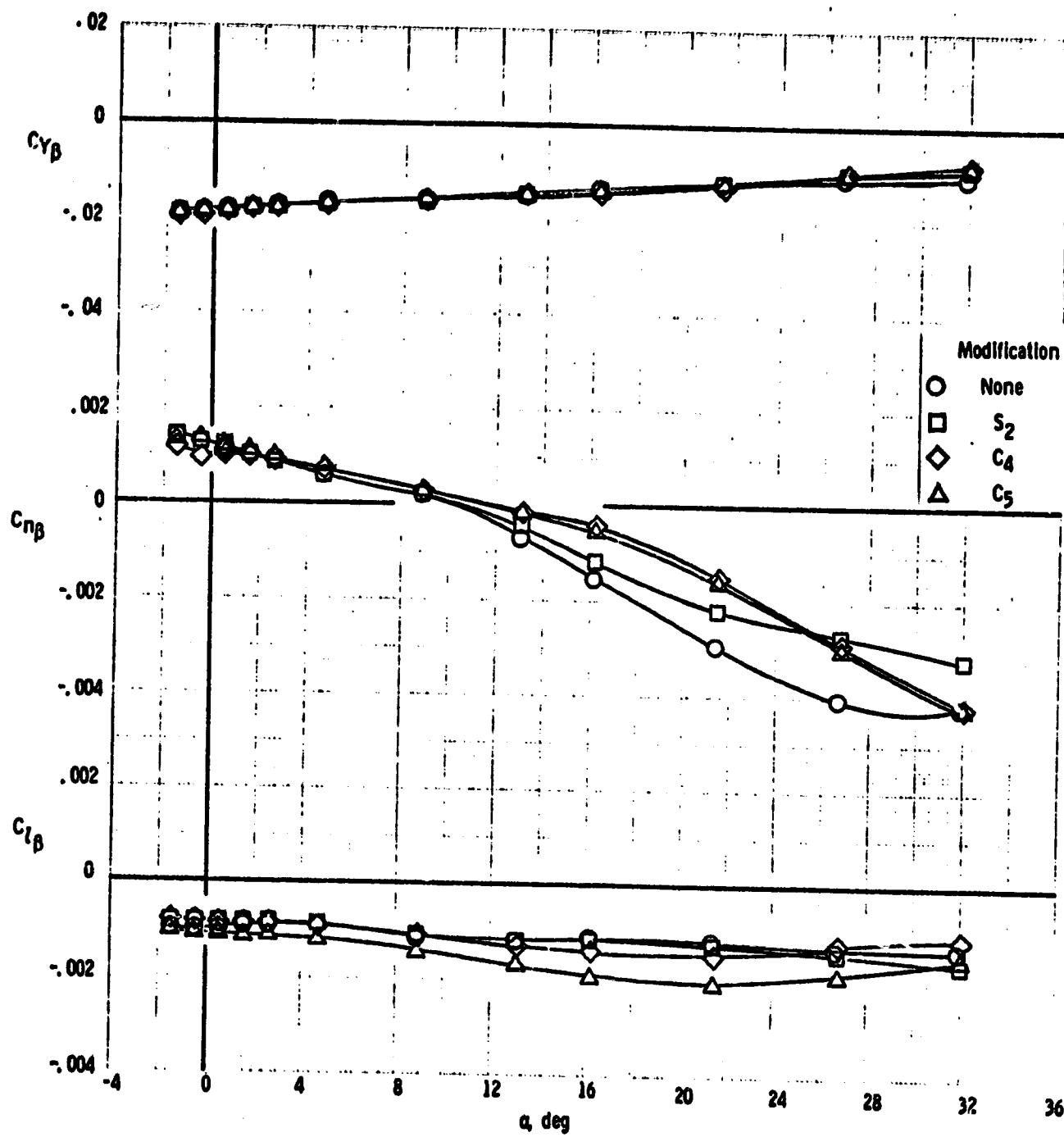
(b) M=2.0

Figure 9. - Continued.

(c) M=2.5
Figure 9. - Concluded.

δ_e, deg.

○ -10

□ -20

.02

0

C_{Y_β}

-.02

-.04

.002

C_{n_β}

0

-.002

-.004

.002

C_{l_β}

0

-.002

-.004

-4   0   4   8   12   16   20   24   28   32

α, deg
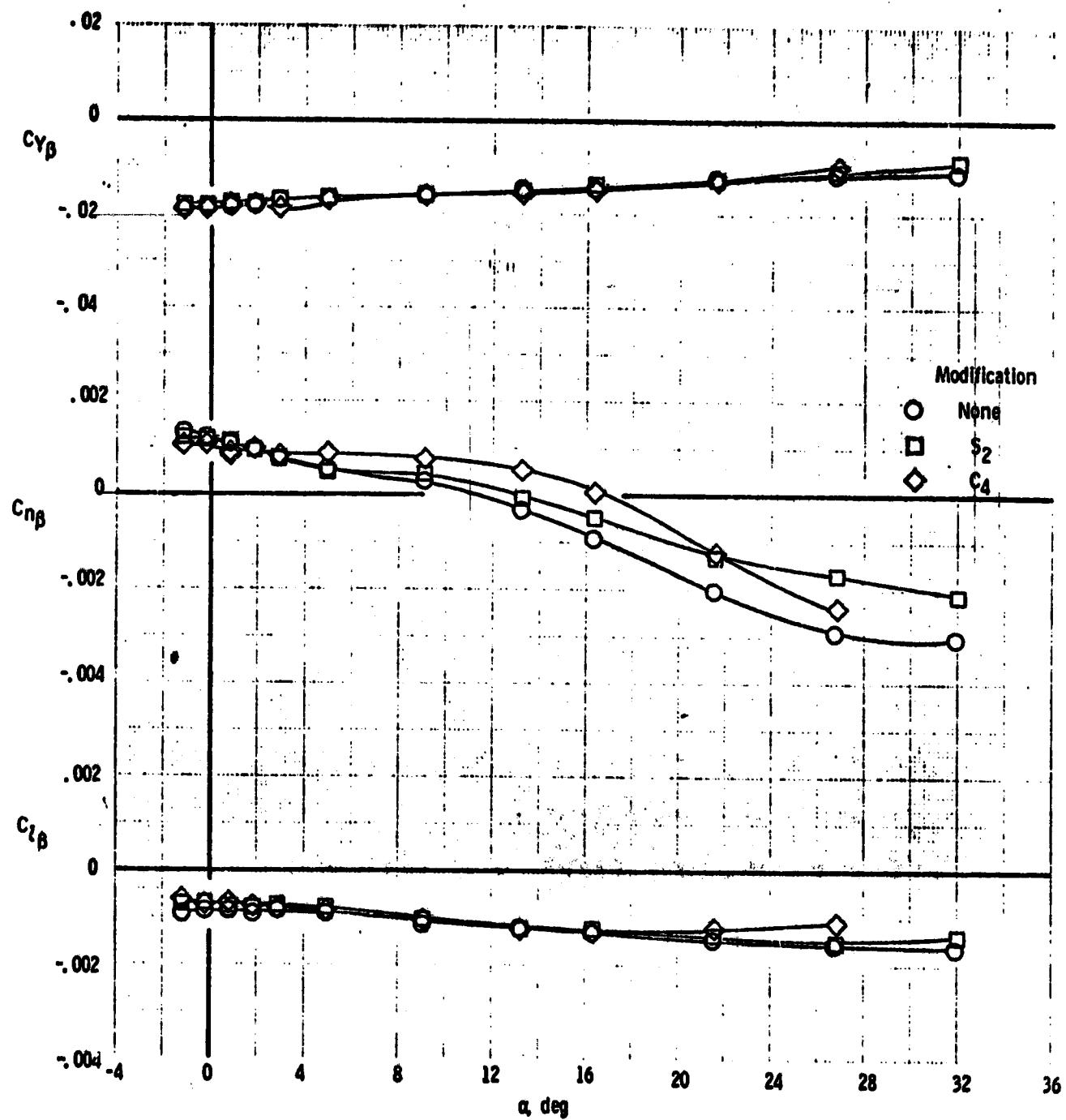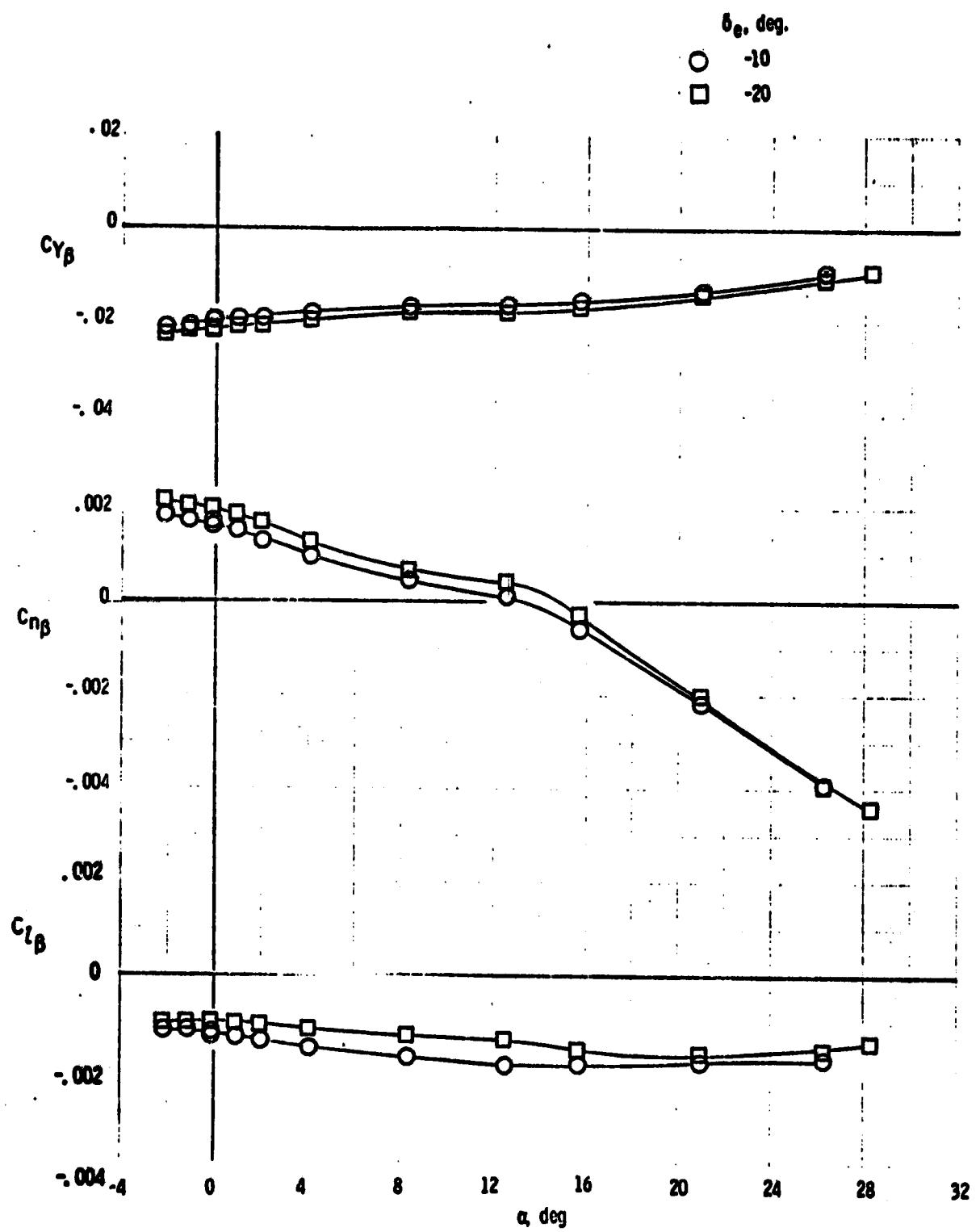
(a) M=1.5

Figure 10. – Lateral-directional aerodynamic characteristics for configuration B_1WVS_2EF. $\delta_{BF}=-11.7^\circ$; $\delta_{SB}=55^\circ$

56
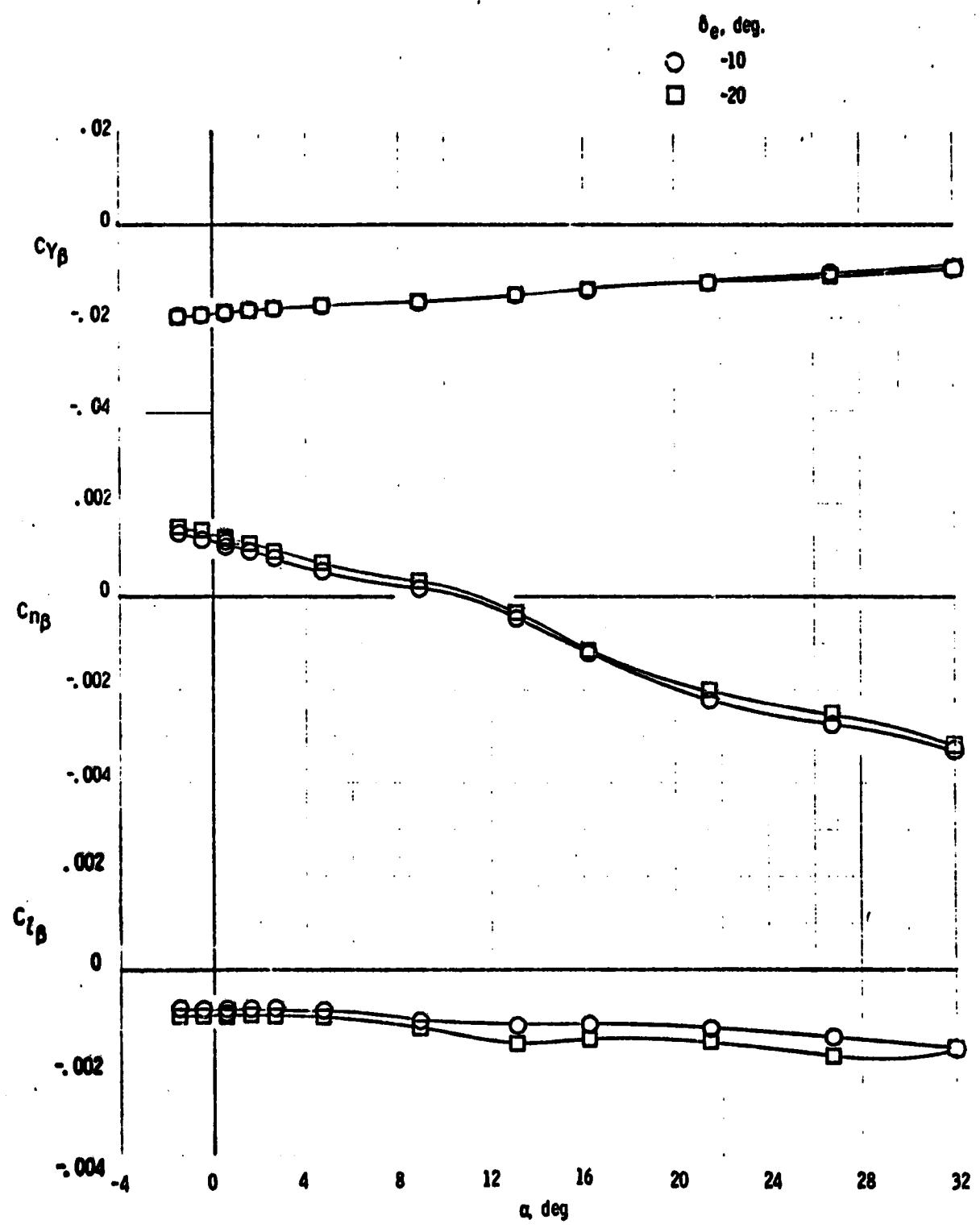
(b) M=2.0

Figure 10. - Continued.
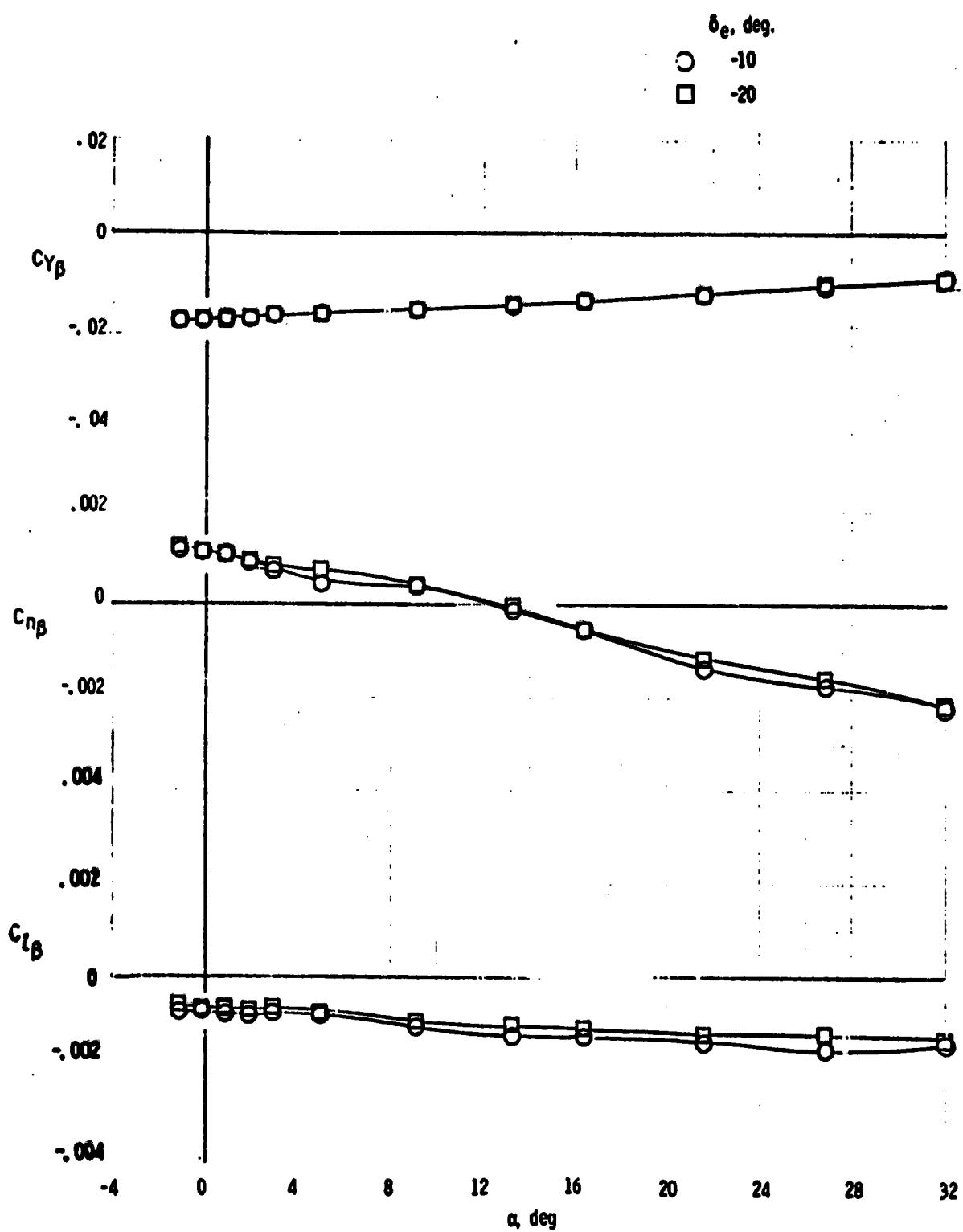
(c) M-2.5

Figure 10. – Concluded.
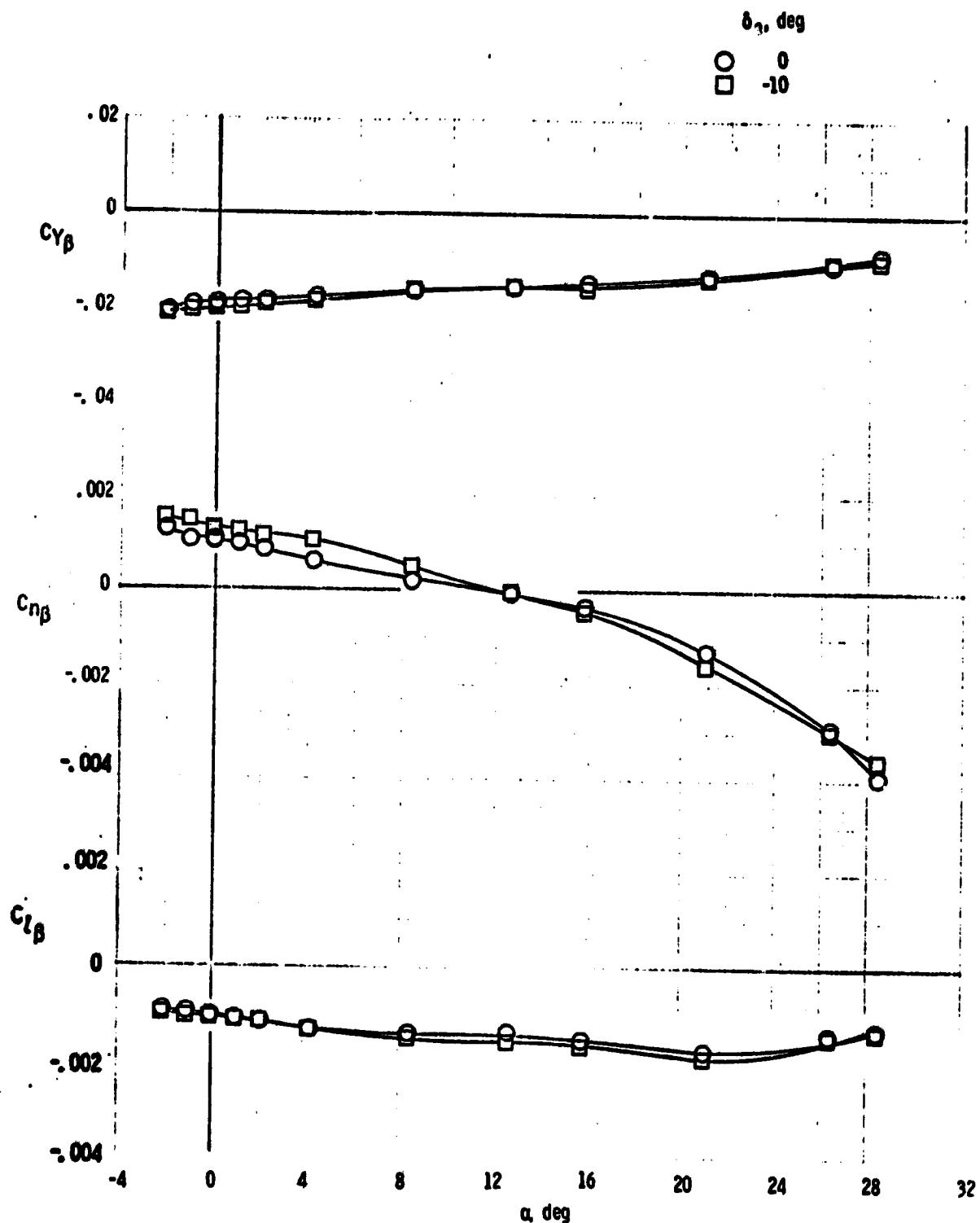
(a) M=1.5

Figure 11. – Lateral-directional aerodynamic characteristics for configuration $B_1WVS_OC_4EF$. $\delta_{BF}=-11.7^O$; $\delta_{SB}=55^O$
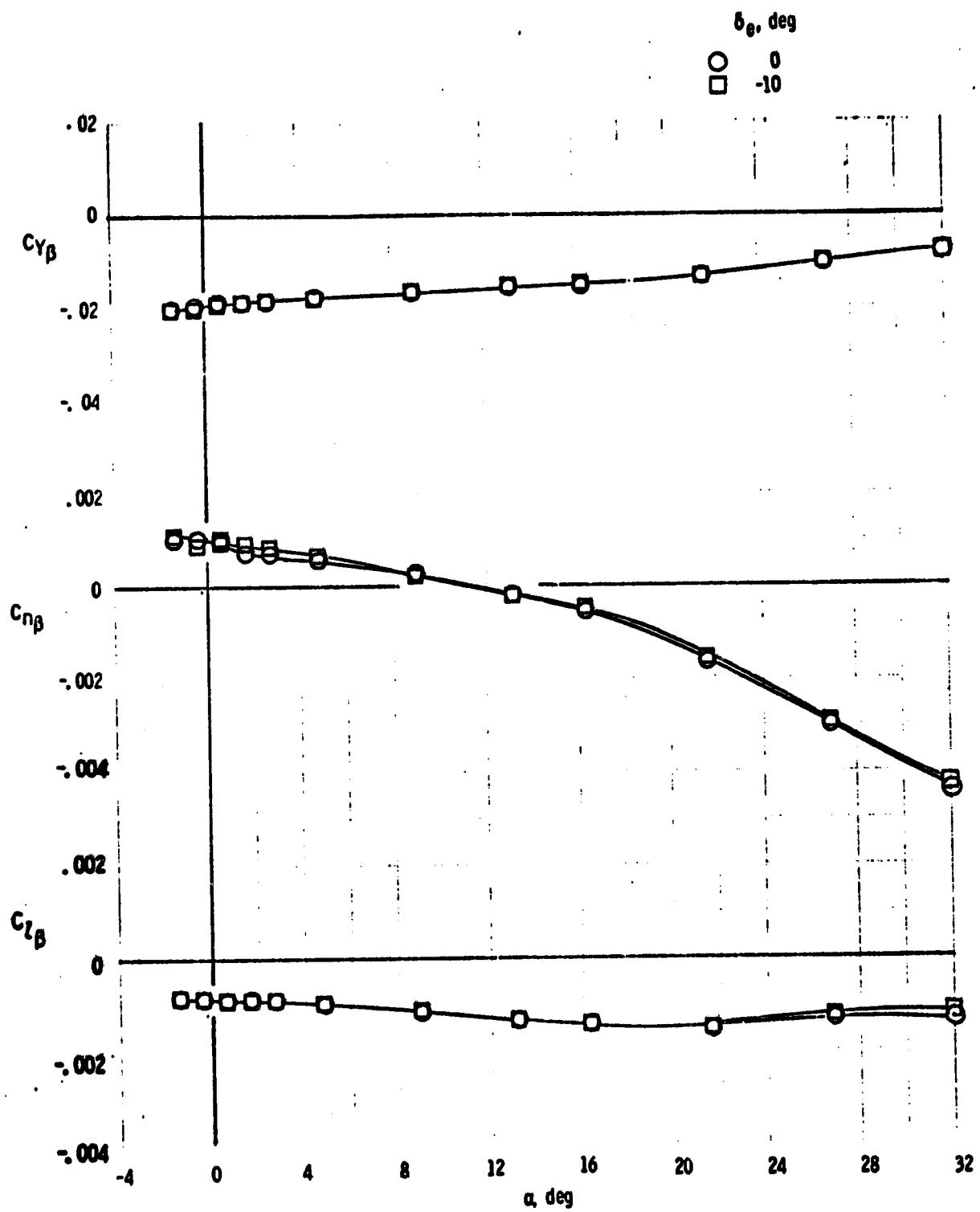
(b) M=2.0

Figure 11. - Continued.
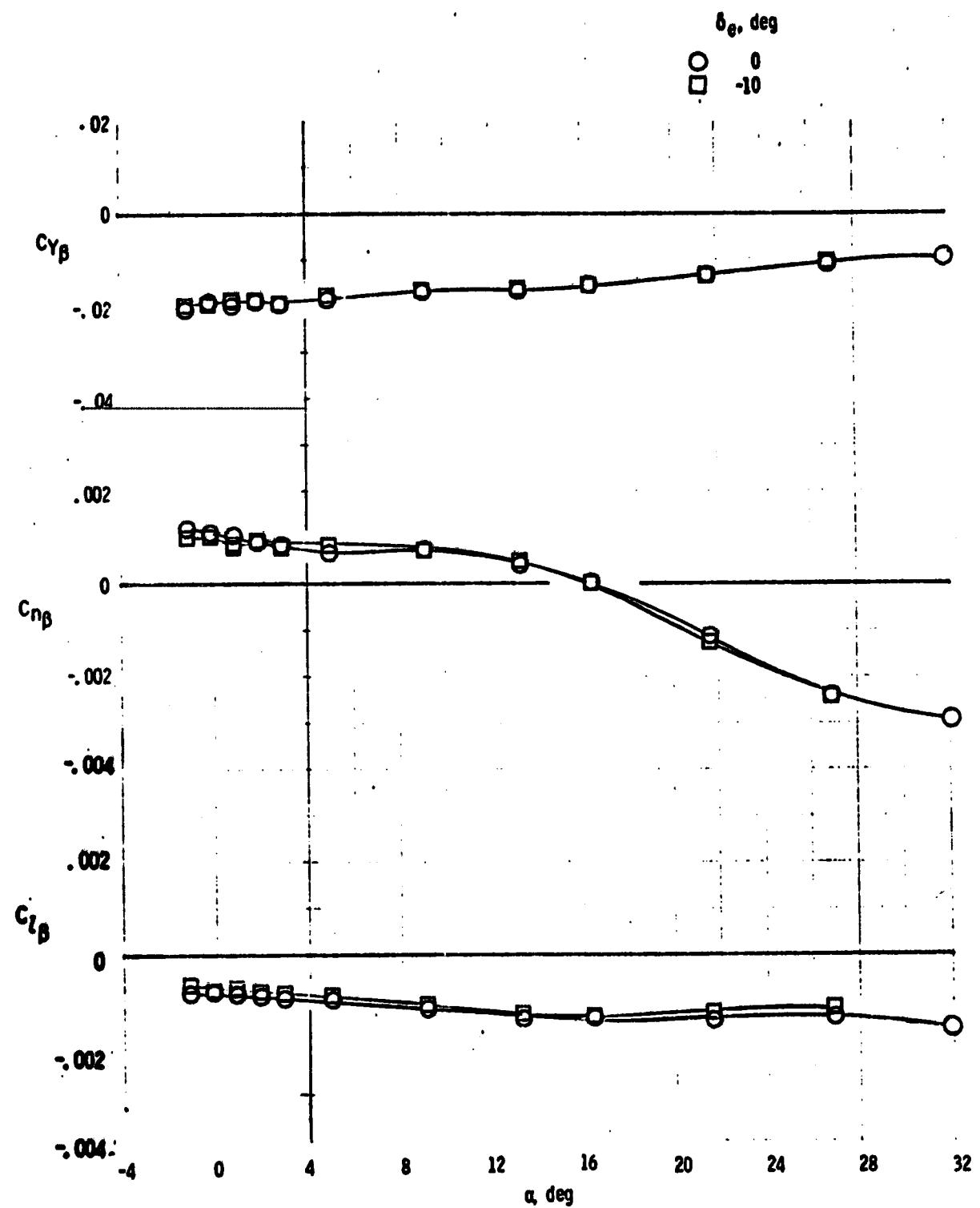
(c) M=2.5

Figure 11. - Concluded.

61

δ_e, deg.

○ -10
□ -20

.02

0

C_{Y_β}

-.02

.002

0

C_{n_β}

-.002

-.004

.002

C_{l_β}

0

-.002

-.004

-4 0 4 8 12 16 20 24 28 32

α, deg
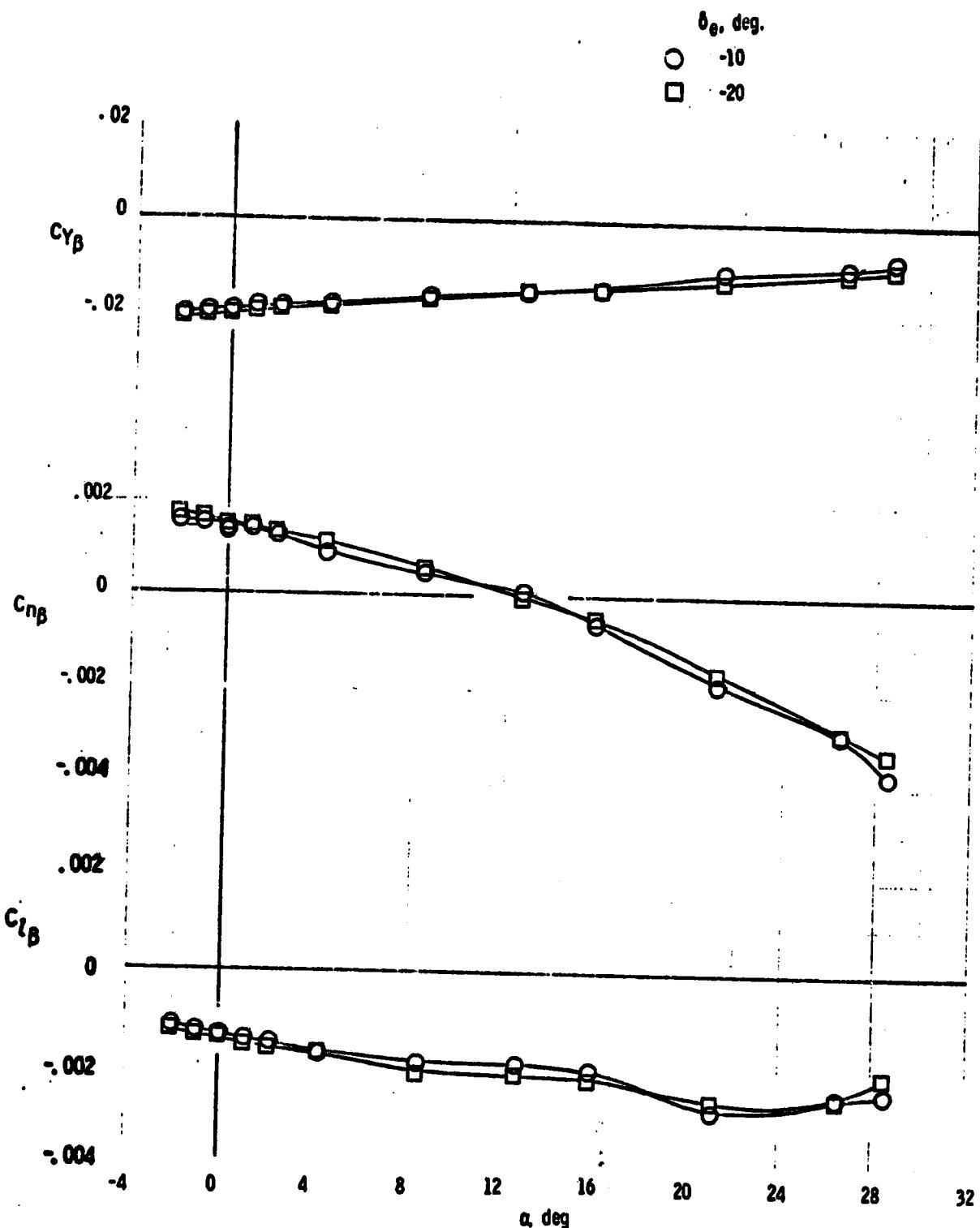
(a) M=1.5

Figure 12. - Lateral-directional aerodynamic characteristics for
configuration $B_1WVS_0C_5EF$. $\delta_{BF}=-11.7^o$; $\delta_{SB}=55^o$
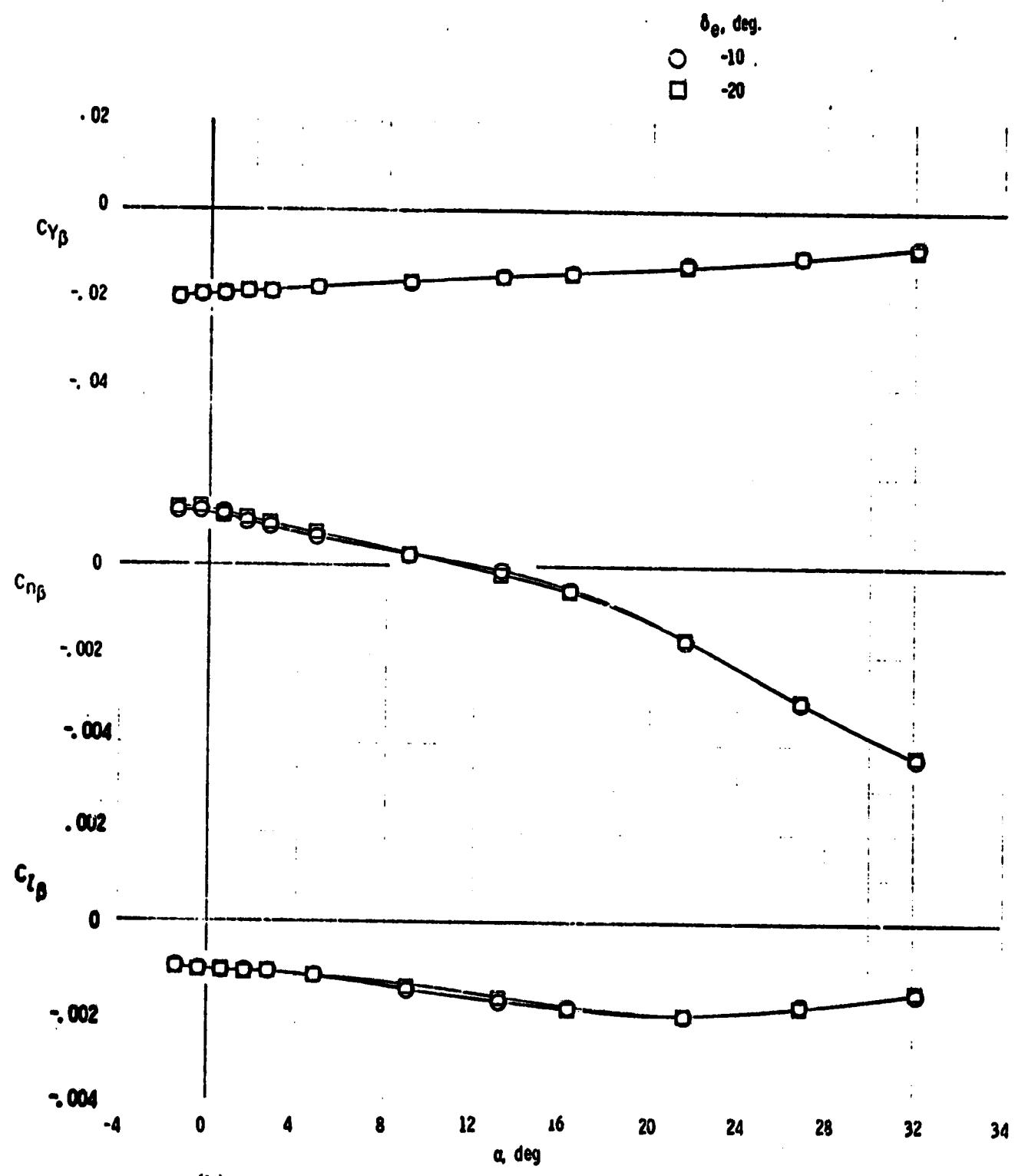
(b) M=2.0

Figure 12. - Continued.
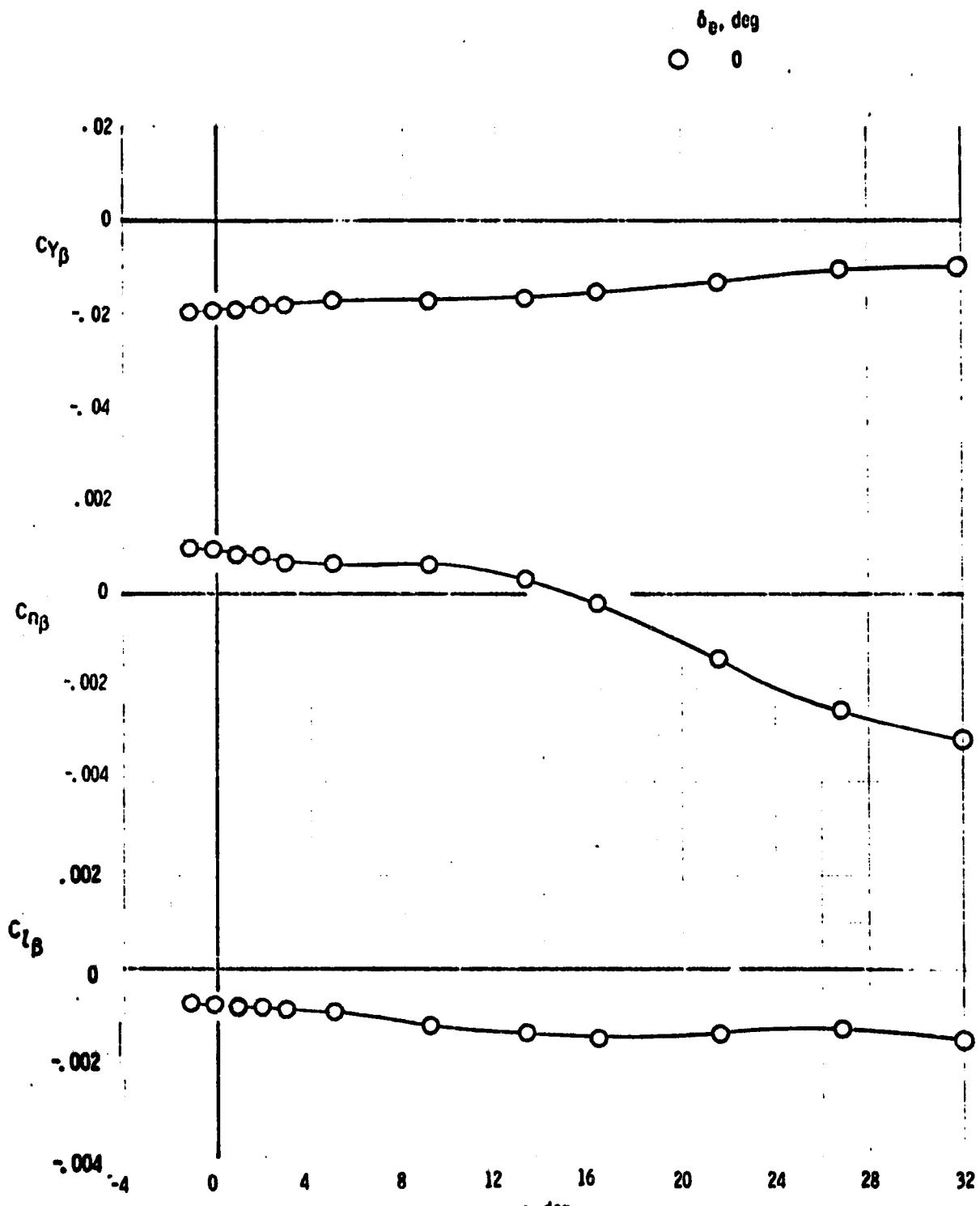
(c) M=2.5
Figure 12. – Concluded.

APPENDIX

Tabulated Data

The data presented herein are identified in table II (Data Set/Run Number Collation Summary) by configuration and run number. These data are also sorted on tape in the Space Shuttle Data Management System (DATAMAN) and are identified by Shuttle test number LA-46A and data set identifier letters RHG. Access to the data may be obtained by writing to the following address:

> Crysler Corporation, Space Division
> Dept. 2910, P.O. Box 29200
> New Orleans, LA 70189

TABLE II

| TEST: UPWT-1092 (LA-46A) | | DATA SET/RUN NUMBER COLLATION SUMMARY | | | DATE: 15 JANUARY 1975 | | | | |

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	δE	δBF	δSB	PARAMETERS/VALUES	NO. OF RUNS	MACH 1.5	MACH 2.0	MACH 2.5
RHG001	BIWV SO EIF1	A	0°	0°	-17	55°		3	13	16	20
02			5°	0°					14	17	21
03			0°	-10°					9	11	7
04			5°	-10°					10	12	8
05			0°	-20°					3	5	1
06	S2		5°	-20°					4	6	2
7			0°	-10°					24	26	22
08			5°	-10°					25	27	23
09			0°	-20°					30	32	28
10	SOC4		5°	-20°					31	33	29
11			0°	0°					42	44	40
12			5°	0°					43	45	41
13			0°	-10°					56	58	60
14			5°	-10°					57	59	61
15			0°	-20°					36	38	34
16			5°	-20°					37	39	35

TEST RUN NUMBERS

CN, CA, CLM, CY, CYN, CBL, CD, L/D, BETA, MACH, ALPHA, 7.0

(var 1)   (var 12) NDV

COEFFICIENTS

$\alpha(A) = -2, -1, 2, 4, 8, 16, 20, 26, 32$

α OR β SCHEDULES

1   7   13   19   25   31   37   43   49   55   61   67   75 76

TEST : UPWT-1092 (LA-46A) DATA SET/RUN NUMBER COLLATION SUMMARY DATE : 15 JANUARY 1975

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	δE	δBF	δSB	PARAMETERS/VALUES	NO. OF RUNS	MACH NUMBERS 1.5	2.0	2.5
RHG017	B1WV S0C41 E1F1	A	0°	0°	-11.7°	55°		3	46	48	50
18			5°	0°				3	47	49	51
19			0°	0°-10°				2	52	54	
20			5°	0°-10°				2	53	55	

CN, CA, CLM, CY, CYN, CBL, CLL, CD, L/D, BETA, MACH, ALPHA

7 13 19 25 31 37 43 49 55 61 67 75 76

α OR β α(A) = -2, -1, 0, 2, 4, 8, 16, 20, 26, 32 PERCENTS

SCHEDULES

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LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W5DEIF1)

(RN6D91)

PARAMETRIC DATA

BETA = .000 ELEVTR = .000
BDFLAP = -11.750 SPDBRK = 55.000

RUN NO. 13/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.052	-.14225	.17043	.07271	.00703	.00051	.00069	-.15593	.17552	-.77645	-.04559
1.500	-1.059	-.08701	.16928	.06178	.00870	.00042	.00100	-.00387	.17086	-.49086	-.04637
1.500	-.038	-.03771	.16775	.05070	.00940	.00029	.00061	-.03760	.16775	-.22412	-.04694
1.500	.995	.01847	.16561	.03944	.00927	.00021	.00069	.01559	.16590	.09397	-.04575
1.500	2.064	.06826	.16368	.02918	.00712	.00022	.00059	.06232	.16583	.37535	-.04469
1.500	4.160	.17357	.15893	.01189	.00734	.00057	.00121	.16158	.17115	.94437	-.04527
1.500	8.366	.37708	.15228	-.01854	.00700	.00109	.00365	.35591	.20352	1.70749	-.04549
1.500	12.577	.57591	.14760	-.04759	.00374	.00151	.00352	.52997	.26926	1.95489	-.04590
1.500	15.717	.72451	.14358	-.06397	.00319	.00198	.00400	.65818	.33386	1.97145	-.04501
1.500	19.180	.88300	.13591	-.07601	.00169	.00200	.00055	.78933	.41847	1.88625	-.04177
1.500	26.238	1.17453	.12255	-.06882	.00252	.00296	.00073	.99936	.62918	1.58833	-.04387
1.500	28.299	1.25845	.12091	-.06543	.00168	.00273	.00027	1.05072	.70306	1.44945	-.04279

RUN NO. 16/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.443	-.08720	.14959	.02696	.00917	-.00058	.00061	-.08341	.15174	-.54966	-.06452
2.000	-.437	-.04750	.14869	.02155	.00908	-.00028	.00050	-.04635	.14905	-.31105	-.06481
2.000	.573	-.00424	.14790	.01543	.00941	-.00037	.00057	-.00572	.14785	-.03865	-.06505
2.000	1.609	.03663	.14732	.00936	.00935	-.00056	.00054	.03248	.14829	.21994	-.06489
2.000	2.671	.07871	.14595	.00413	.00935	-.00036	.00040	.07182	.14946	.48057	-.06507
2.000	4.735	.15934	.14161	-.00452	.00752	-.00017	.00049	.14680	.15425	.95172	-.06348
2.000	8.901	.31838	.13388	-.01656	.00640	.00051	.00031	.29383	.18152	1.61869	-.06311
2.000	13.072	.47449	.12734	-.02427	.00389	.00013	.00059	.43339	.23136	1.87323	-.06533
2.000	16.201	.60320	.12218	-.03142	.00342	.00033	.00062	.54516	.28562	1.93057	-.06520
2.000	21.445	.81608	.11563	-.04514	.00352	.00058	.00032	.71914	.40134	1.79187	-.06388
2.000	26.713	1.02840	.09792	-.05383	.00384	.00062	.00048	.87462	.54976	1.59089	-.06133
2.000	31.926	1.24894	.08811	-.06723	.00073	.00111	.00069	1.01265	.73479	1.37616	-.05888

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1WS9E1F1)

PARAMETRIC DATA

(R=001)

BETA =	.000	ELEVTR =	.000
BDFLAP =	-11.700	SPDBRK =	55.000

RUN NO. 20/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CEL	CL	CD	L/D	BETA
2.500	-1.130	-.06853	.13104	.01309	.00511	.00024	-.00019	-.06393	.13233	-.48311	-.06109
2.500	-.143	-.03990	.13012	.01137	.00446	.00039	-.00903	-.03947	.13022	-.30310	-.06066
2.500	.062	-.00779	.12312	.00839	.00564	.00004	.00021	-.00975	.12898	-.07542	-.06140
2.500	1.885	.02827	.12791	.00678	.00400	.00021	.00029	.02404	.12877	.16573	-.06016
2.500	2.917	.05485	.12680	.00531	.00312	.00022	.00006	.04803	.12941	.37714	-.05941
2.500	4.976	.11951	.12277	.00273	.00354	.00022	.00027	.10842	.13267	.81716	-.05975
2.500	9.095	.24729	.11505	-.00710	.00147	.00031	.00014	.22660	.15269	1.48900	-.05794
2.500	13.240	.39211	.10874	-.01571	-.00061	.00032	.00019	.35579	.19565	1.82356	-.05620
2.500	16.338	.49990	.10461	-.01928	.00096	.00013	.00021	.45928	.24191	1.86531	-.05851
2.500	21.548	.69662	.09493	-.02911	-.00169	.00128	.00022	.61357	.34415	1.78138	-.05655
2.500	26.785	.89822	.08525	-.03944	-.00202	.00191	.00056	.76341	.48090	1.59728	-.05711
2.500	31.974	1.11171	.07641	-.05277	-.00436	.00143	.00084	.92259	.55359	1.38116	-.05452

UPWT-1092 (LA-46A)ORBITER (B1WS9E1F1)

PARAMETRIC DATA

(R=002)

BETA =	5.000	ELEVTR =	.000
BDFLAP =	-11.700	SPDBRK =	55.000

RUN NO. 14/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.090	-.13753	.17029	.06550	-.09237	.00087	-.00431	-.13123	.17519	-.74904	5.08441
1.500	-1.052	-.09171	.16960	.05526	-.09029	.00800	-.00462	-.08855	.17147	-.51641	5.08335
1.500	-.039	-.03625	.16893	.04516	-.08936	.00758	-.00500	-.03616	.16995	-.21403	5.08292
1.500	.987	.01545	.16794	.03465	-.08661	.00683	-.00537	.01256	.16818	.07467	5.08107
1.500	2.044	.06843	.16624	.02605	-.08340	.00666	-.00586	.06245	.16857	.37049	5.07609
1.500	4.146	.17260	.16175	.00787	-.08085	.00485	-.00666	.16046	.17381	.92316	5.07775
1.500	8.346	.36844	.15473	-.02015	-.07583	.00253	-.00658	.34208	.20657	1.65597	5.07564
1.500	12.554	.55407	.14854	-.04498	-.08106	.00271	-.00692	.51830	.26759	1.93691	5.08041
1.500	15.713	.71628	.14133	-.06190	-.07466	.00235	-.00720	.65124	.33303	1.97331	5.07994
1.500	20.992	.96071	.12671	-.08296	-.07060	-.01112	-.00520	.85156	.46246	1.84135	5.08582
1.500	25.604	1.14199	.12035	-.07778	-.05572	-.02135	-.00665	.97784	.60204	1.62423	5.08597
1.500	28.285	1.25726	.11556	-.07586	-.05061	-.02454	-.00804	1.05238	.69753	1.50873	5.08177

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A;ORBITER (B1W9D5(F1))

PARAMETRIC DATA

(RN6952)

| | | BETA = .000 | S.PRB = 5.000 | ELEVTR = -11.700 | | |
| | | BDFLAP = | | SFBRK = 55.000 | | |

RUN NO. 17/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.031	-.08583	.14676	.02395	-.08083	.00553	-.00496	-.00209	.15065	-.54416	5.06724
2.000	-.435	-.04726	.14603	.01741	-.08053	.00491	-.00495	-.04614	.14838	-.31093	5.06775
2.000	.572	-.01435	.14576	.01318	-.06592	.00624	-.00503	-.00581	.14671	-.03962	5.05345
2.000	1.652	.03545	.14594	.00748	-.06424	.00691	-.00476	.03136	.14568	.21351	5.06354
2.000	2.645	.07774	.14740	.00216	-.08253	.00298	-.00457	.06596	.14816	.47092	5.06296
2.000	4.722	.15959	.14180	-.00591	-.08023	.00190	-.00474	.14735	.15456	.95340	5.06105
2.000	8.504	.31923	.13604	-.01825	-.07773	.00039	-.00609	.29433	.18385	1.60092	5.36049
2.000	13.075	.47771	.12924	-.02457	-.07097	-.00358	-.00643	.43690	.23395	1.85404	5.05835
2.000	16.209	.67467	.12150	-.03395	-.06680	-.00831	-.00562	.54691	.28551	1.91553	5.05966
2.000	21.443	.81141	.11763	-.04455	-.05970	-.01512	-.00560	.71543	.39561	1.80413	5.05963
2.000	26.713	1.02683	.09816	-.05519	-.05357	-.02052	-.00728	.87316	.54928	1.58963	5.06046
2.000	31.923	1.25254	.09139	-.06727	-.05334	-.02179	-.00735	1.01467	.76893	1.37112	5.06177

RUN NO. 21/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.137	-.06880	.13100	.00919	-.09456	.00634	-.00495	-.06619	.13234	-.50015	5.08197
2.500	-.133	-.04035	.12970	.00767	-.09500	.00634	-.00508	-.04005	.12979	-.35859	5.08232
2.500	.891	-.00375	.12797	.00534	-.08764	.00499	-.00450	.00176	.12801	.01373	5.07716
2.500	1.862	.02795	.12689	.00363	-.08761	.00442	-.00479	.02381	.12772	.18545	5.07773
2.500	2.925	.06595	.12516	.00219	-.08609	.00389	-.00476	.05948	.12837	.46338	5.07694
2.500	4.979	.12845	.12220	.00101	-.08427	.00287	-.00572	.11736	.13289	.88313	5.07640
2.500	9.110	.26518	.11564	-.00759	-.08071	.00164	-.00629	.23859	.15538	1.53551	5.07459
2.500	13.239	.39231	.10955	-.01569	-.07611	-.00128	-.00692	.35680	.19648	1.81593	5.07348
2.500	16.350	.50855	.10353	-.02315	-.07286	-.00422	-.00740	.45884	.24250	1.89210	5.07363
2.500	21.548	.69854	.09273	-.03193	-.06650	-.00905	-.00775	.61566	.34281	1.79594	5.07276
2.500	26.782	.90198	.08554	-.04332	-.06025	-.01329	-.00843	.76658	.48280	1.58799	5.07159
2.500	31.970	1.11136	.07954	-.05205	-.05871	-.01468	-.00894	.90969	.65591	1.37319	5.07168

LA46 A/B TABULATED SOURCE DATA

UFWT-1092 (LA-46A)ORBITER (B1W5OE1F1)

PARAMETRIC DATA

(RHGG03)

BETA =	.000	ELEVTR = -10.000
BETA =	-11.700	SPDBRK = 55.000
BDFLAF =		

RUN NO. 9/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CC	L/C	BETA
1.500	-2.133	-.20740	.17940	.11743	-.00152	.00189	.00149	-.20059	.18660	-1.07500	-.05737
1.500	-1.103	-.15357	.17601	.10641	-.00183	.00192	.00154	-.15012	.18094	-.82967	-.05721
1.500	-.050	-.10055	.17620	.09578	-.00162	.00183	.00133	-.10028	.17836	-.56859	-.05743
1.500	.945	-.04780	.17360	.08575	-.00191	.00186	.00135	-.05056	.17279	-.29319	-.05726
1.500	2.018	.00817	.17090	.07514	-.00089	.00178	.00123	.00215	.17108	.01259	-.05926
1.500	4.156	.11045	.16475	.05751	-.00080	.00158	.00103	.09936	.17223	.57121	-.05611
1.500	8.313	.31267	.15616	.02568	-.00225	.00227	.00127	.28581	.19974	1.43591	-.05749
1.500	12.534	.51790	.14760	-.00299	-.00364	.00264	.00173	.47351	.25657	1.84555	-.05690
1.500	15.645	.66512	.14055	-.01378	-.00485	.00275	.00165	.60237	.31519	1.91168	-.05519
1.500	20.951	.90153	.22875	-.03176	-.00536	.00271	.00139	.79569	.44260	1.79824	-.05373
1.500	26.221	1.10788	.11915	-.02256	-.00646	.00329	.00199	.94123	.59539	1.57821	-.05412
1.500	28.259	1.19271	.11622	-.01373	-.00689	.00270	.00024	.99553	.66706	1.49241	-.05292

RUN NO. 11/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CC	L/C	BETA
2.000	-1.473	-.12542	.15227	.06049	.00147	-.00013	.00109	-.12146	.15544	-.78138	-.03995
2.000	-.459	-.08441	.15094	.05488	.00210	-.00011	.00105	-.08319	.15161	-.54972	-.03979
2.000	.556	-.04149	.14927	.04880	.00208	-.00017	.00092	-.04294	.14866	-.28846	-.03984
2.000	1.586	-.00289	.14795	.04591	.00187	.00005	.00065	-.06698	.14781	-.04725	-.03995
2.000	2.633	.03999	.14593	.03756	.00134	-.00051	.00068	.03325	.14761	.22523	-.03946
2.000	4.714	.12237	.14110	.02794	.00008	.00015	.00054	.11036	.15068	.73245	-.03843
2.000	8.874	.28027	.13305	.01402	-.00113	.00048	.00049	.25638	.17470	1.46755	-.03763
2.000	13.049	.43389	.12453	.00877	-.00140	.00100	.00043	.39457	.21928	1.79939	-.03776
2.000	16.185	.56126	.11893	.00346	-.00294	.00093	.00059	.55587	.27366	1.86990	-.03606
2.000	21.427	.77247	.15751	-.00799	-.00273	.00095	.00075	.67981	.38229	1.77830	-.03633
2.000	25.698	.98270	.09360	-.01532	-.00326	.00108	.00051	.83614	.52461	1.59384	-.03580
2.000	31.952	1.20526	.08057	-.02370	-.00553	.00082	.00071	.98158	.70531	1.39028	-.03303

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46)ORBITER (B1WVSOE(F1))

(RHC003)

PARAMETRIC DATA

BETA =	.000	ELEVTR = -10.000
BCFLAP =	-11.700	SFCBRK = 55.000

RUN NC. 7/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
2.500	-1.153	-.09568	.13348	.02544	.00806	.00089	.00110	-.08797	.13528	-.65033	-.04568
2.500	-.147	-.06119	.13212	.02327	.00863	.00080	.00050	-.06085	.13227	-.46926	-.04640
2.500	.849	-.03125	.13053	.02056	.01002	.00072	.00083	-.03318	.13005	-.25514	-.04763
2.500	1.865	-.00113	.12935	.01863	.00781	.00079	.00066	-.00534	.12924	-.04133	-.04585
2.500	2.901	.03501	.12737	.01650	.00648	.00098	.00078	.02852	.12898	.22115	-.04497
2.500	4.957	.09705	.12332	.01395	.00939	.00102	.00065	.08603	.13124	.65548	-.04759
2.500	9.984	.22766	.11452	.00650	.00748	.00102	.00069	.20672	.14903	1.38714	-.04590
2.500	13.228	.37115	.10661	.00839	.00535	.00157	.00049	.33606	.16891	1.78321	-.04586
2.500	16.323	.47235	.10220	-.00362	.00691	.00155	.00067	.42650	.22129	1.84319	-.04561
2.500	21.537	.67181	.09209	-.00944	.00496	.00183	.00081	.59110	.33223	1.77667	-.04423
2.500	26.763	.85712	.08046	-.01670	.00443	.00226	.00096	.73799	.46233	1.59624	-.04405
2.500	31.951	1.07870	.06956	-.02493	.00172	.00172	.00089	.87932	.63039	1.39686	-.04561

UPWT-1092 (LA-46)ORBITER (B1WVSOE(F1))

(RHC004)

PARAMETRIC DATA

BETA =	5.000	ELEVTR = -10.000
BCFLAP =	-11.700	SFCBRK = 55.000

RUN NO. 10/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
1.500	-2.143	-.20913	.17659	.11273	-.10748	.01107	-.00428	-.20238	.16428	-1.09618	5.09618
1.500	-1.113	-.15407	.17528	.10178	-.10295	.01044	-.00443	-.15063	.17824	-.84512	5.09237
1.500	-.107	-.10296	.17416	.09229	-.10329	.01026	-.00457	-.10263	.17435	-.56865	5.09272
1.500	.956	-.05019	.17277	.08196	-.09955	.00922	-.00466	-.05303	.17162	-.30847	5.09918
1.500	2.013	.00362	.17092	.07206	-.09717	.00849	-.00505	-.00235	.17095	-.01376	5.09864
1.500	4.098	.10605	.16633	.05506	-.09161	.00669	-.00584	.09390	.17348	.54125	5.09529
1.500	8.309	.31081	.15777	.02393	-.08634	.00425	-.00657	.28475	.20103	1.41644	5.09299
1.500	12.523	.51184	.14756	-.00213	-.0891.	.00277	-.00799	.46767	.25593	1.83376	5.09763
1.500	15.667	.65554	.13895	-.01626	-.08276	.00222	-.00722	.59366	.31091	1.91903	5.08721
1.500	20.945	.89768	.12270	-.03263	-.07795	-.01016	-.00486	.79450	.43549	1.82438	5.09176
1.500	26.207	1.10310	.11507	-.02583	-.06507	-.02153	-.00638	.93888	.59039	1.59027	5.09262
1.500	29.243	1.18598	.11147	-.02304	-.06273	-.02368	-.00722	.99203	.65942	1.59440	5.09286

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W5DE1F1)

(RMG004)

PARAMETRIC DATA

BETA =	5.000	ELEVTR = -10.000
BDFLAP =	-11.700	SPDBRK = 55.000

RUN NO. 12/0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
2.000	-1.463	-.12744	.15176	.05727	-.09766	.00666	-.00405	-.12353	.15497	-.79712	5.09133
2.000	-.464	-.08549	.15044	.05226	-.09569	.00615	-.00426	-.08427	.15112	-.55762	5.08994
2.000	.546	-.04588	.14909	.04706	-.09312	.00553	-.00433	-.04730	.14864	-.31820	5.08954
2.000	1.586	-.02284	.14761	.04115	-.09170	.00494	-.00419	-.00692	.14747	-.04695	5.08726
2.000	2.626	.03792	.14612	.03592	-.08954	.00443	-.00416	.03119	.14770	.21114	5.08565
2.000	4.707	.11873	.14267	.02628	-.08605	.00289	-.00425	.10662	.15193	.70180	5.08402
2.000	8.870	.27690	.13495	.01278	-.08406	.00124	-.00554	.25278	.17693	1.43605	5.08450
2.000	13.051	.43627	.12661	.00794	-.07834	-.00286	-.00581	.39541	.22186	1.78674	5.08307
2.000	16.175	.55641	.11906	.00187	-.07272	-.00721	-.00520	.50314	.26991	1.86459	5.08522
2.000	21.422	.77005	.10494	-.00944	-.06660	-.01428	-.00536	.67927	.37924	1.79114	5.08533
2.000	26.687	.97977	.09319	-.01454	-.05991	-.01965	-.00645	.83355	.52329	1.59288	5.08794
2.000	31.895	1.19412	.08351	-.02144	-.06110	-.02089	-.00626	.96971	.70183	1.38169	5.08794

RUN NO. 8/0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
2.500	-1.149	-.09005	.13293	.02199	-.09153	.00743	-.00382	-.08736	.13471	-.64852	5.07769
2.500	-.172	-.06077	.13128	.01974	-.08895	.00677	-.00403	-.06038	.13146	-.45930	5.07603
2.500	.853	-.02074	.12937	.01758	-.08523	.00614	-.00360	-.02266	.12904	-.17559	5.07324
2.500	1.859	.00330	.12807	.01499	-.08796	.00552	-.00420	-.00086	.12611	-.09668	5.07639
2.500	2.911	.03919	.12634	.01356	-.08267	.00463	-.00370	.03273	.12817	.25534	5.07248
2.500	4.961	.10270	.12297	.01044	-.07886	.00356	-.00395	.09168	.13139	.69778	5.07001
2.500	9.091	.23584	.11498	.00439	-.07639	.00227	-.00530	.21471	.15080	1.42376	5.06930
2.500	13.225	.36991	.10811	.00152	-.07106	.00083	-.00586	.33536	.18987	1.76629	5.06603
2.500	16.325	.47929	.10171	-.00646	-.06922	-.00343	-.00616	.43138	.23233	1.85673	5.06927
2.500	21.537	.67439	.08939	-.01302	-.06056	-.00874	-.00674	.59449	.33072	1.79757	5.06711
2.500	26.760	.86801	.08157	-.01962	-.05571	-.01284	-.00715	.73832	.46366	1.59237	5.06729
2.500	31.952	1.07813	.07289	-.02489	-.05689	-.01399	-.00761	.87622	.63239	1.38456	5.06981

LA46 A/B TABULATED SOURCE DATA

PAGE 7

UPWT-1092 (LA-46A)ORBITER (B1WVSDE1F1)

(RM5005)

PARAMETRIC DATA

BETA =	DPC = ELEVTR = -20.000
BDFLAP =	-1.700 SPDBRK = 55.000

RUN NO 3/2

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.194	-.27311	.1974	.15465	-.00336	.00188	.00003	-.27139	.2?356	-1.31117	-.03714
1.500	-1.176	-.22276	.15434	.14335	-.00316	.00019	.00006	-.21871	.1993?	-1.09702	-.03718
1.900	-.151	-.16736	.1957?	.1324?	-.00180	.0015?	.00006	-.1568?	.0352	-.06830	-.0353?
1.850	.905	-.11203	.18167	.1?1??	-.00369	.0013?	.00043	-.11503	.1891?	-.60807	-.0367?
1.895	1.964	-.0543?	.1?6??	.11006	-.00235	.00172	.0001?	-.06074	.0655	-.3255?	-.0374?
1.895	4.354	.05355	.12293	.06053	.00195	.00169	-.0022?	.04?16	.1862?	.2?781	-.03805
1.500	8.272	.25678	.17186	.06014	.00322	.00215	-.00005	.22939	.29596	1.10433	-.0353?
1.500	12.466	.4?7?9	.16?37	.032?3	.00717	.00294	.00022	.41195	.2560?	1.66337	-.0344?
1.500	15.639	.51291	.1?502	.01654	-.00200	.00266	-.00247	.54873	.31044	1.75259	-.0351?
1.500	20.35?	.6401	.13217	.0?59?	-.00719	.00211	-.0??3?	.73598	.42012	1.71?11	-.03372
1.500	25.185	1.0?464	.12601	.0?445	-.00962	.00179	-.00350	.89323	.5825?	1.53364	-.03211
1.500	29.222	1.13079	.12359	.01992	-.00752	.00199	-.0011?	.94497	.6474?	1.45952	-.03304

RUN NO 3/6

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.505	-.16584	.15452	.08735	-.00099	-.00061	.00040	-.16087	.16880	-.9518?	-.03660
2.000	-.492	-.12379	.16265	.08175	-.00091	-.00040	.00005	-.12259	.15372	-.7675?	-.03674
2.000	.533	-.08331	.15?34	.07?00	-.00095	-.00035	.00030	-.0846?	.15986	-.5304?	-.03576
2.000	1.559	-.04199	.15883	.06032	-.0034?	-.00043	.00016	-.04629	.15733	-.29422	-.0375?
2.000	2.603	.00251	.15522	.06435	-.00039	-.0004?	.00011	-.0?66?	.15509	-.04231	-.03707
2.000	4.697	.56117	.15216	.05434	.00138	.0004?	-.00014	.05847	.1582?	.43282	-.03619
2.000	6.856	.24375	.14147	.03939	.00347	.0007?	-.00026	.21907	.17739	1.23555	-.03482
2.000	13.033	.40203	.132?0	.03316	.00412	-.00029	-.00004	.36189	.21932	1.65???	-.03393
2.000	16.152	.52?78	.12997	.02955	.00376	-.00003	-.00011	.46835	.26579	1.7554?	-.03437
2.000	21.46?	.73469	.1134?	.01956	-.00610	-.0002?	-.00005	.64262	.37375	1.71937	-.0320?
2.000	25.656	.94345	.05788	.01377	-.00591	-.00029	-.00037	.79926	.51074	1.56491	-.03219
2.000	31.865	1.15926	.03486	.0?894	-.00862	.00013	-.00045	.93976	.68407	1.3737?	-.02986

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1WSDE1F1)

(RN6005)

PARAMETRIC DATA

BETA = .000   ELEVTR = -20.000
BDFLAP = -11.700   SFDBRK = 55.000

RUN NO. 1/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.164	-.12375	.14298	.04499	.00593	.09104	.00040	-.12082	.14547	-.03057	-.04483
2.500	-.173	-.09411	.14119	.04202	.01046	.00091	.00009	-.09369	.14148	-.66221	-.04043
2.500	.813	-.06562	.13942	.03937	.00803	.00087	.00058	-.06760	.13947	-.48960	-.04615
2.500	1.842	-.03082	.13726	.03635	.00944	.00081	.00070	-.03522	.13620	-.25855	-.04725
2.500	2.877	-.00071	.13514	.03389	.08870	.00087	.03059	-.00749	.13494	-.05551	-.04656
2.500	4.932	.07065	.12955	.02990	.01076	.00112	.00003	.05925	.13515	.43638	-.04874
2.500	9.060	.20335	.11964	.02144	.00911	.00120	.00055	.18198	.15017	1.21181	-.04753
2.500	13.209	.34261	.11207	.01559	.00769	.00115	.00041	.30794	.18739	1.64331	-.04698
2.500	16.306	.44578	.10648	.01273	.00810	.00159	.00032	.39793	.22735	1.75032	-.04684
2.500	21.516	.63997	.09586	.00781	.09470	.00176	.00013	.56022	.32390	1.72960	-.04430
2.500	26.743	.83791	.08387	.00485	.00527	.00221	.00036	.71053	.45198	1.57203	-.04327
2.500	31.926	1.04116	.07216	.00023	.00516	.00196	.00049	.84551	.61183	1.38195	-.04295

UPWT-1092 (LA-46A)ORBITER (B1WSDE1F1)

(RN6006)

PARAMETRIC DATA

BETA = 5.000   ELEVTR = -20.000
BDFLAP = -11.700   SFDBRK = 55.000

RUN NO. 4/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.194	-.27681	.19518	.15234	-.11585	.01272	-.00613	-.26914	.20564	-1.30879	5.08295
1.500	-1.161	-.22155	.19353	.14134	-.11231	.01211	-.00614	-.21758	.19798	-1.09900	5.08032
1.500	-.148	-.16874	.19169	.13040	-.10960	.01149	-.00620	-.16824	.19212	-.87570	5.07848
1.500	.929	-.11360	.18958	.11917	-.10714	.01059	-.00630	-.11660	.18776	-.62109	5.07724
1.500	1.960	-.05689	.18741	.10815	-.10403	.00979	-.00614	-.06326	.18535	-.34150	5.07323
1.500	4.056	.05074	.18268	.06945	-.09883	.00736	-.01763	.03769	.18582	.20285	5.07285
1.500	8.273	.24997	.17311	.06100	-.09207	.00431	-.00888	.22246	.20728	1.07326	5.06961
1.500	12.483	.45506	.16065	.03418	-.09438	.00330	-.00959	.40954	.25541	1.60345	5.07318
1.500	15.628	.59747	.15112	.02305	-.08867	-.00184	-.00979	.53467	.30649	1.74449	5.07361
1.500	20.901	.83362	.13512	.01160	-.08581	-.00837	-.00557	.73057	.42362	1.72457	5.07907
1.500	26.167	1.03983	.12433	.01263	-.07075	-.02110	-.00549	.87843	.57915	1.54069	5.07617
1.500	28.215	1.13225	.11979	.01569	-.06713	-.02380	-.00665	.94107	.64088	1.46842	5.07784

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W9DE1F1)

(RHG006)

PARAMETRIC DATA

BETA   =   5.000   ELEVTR = -20.000
BDFLAP = -11.700 SPDBRK =   55.000

RUN NO. 6/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.500	-.16989	.16407	.08432	-.10421	.00734	-.00494	-.16554	.16847	-.98262	5.09630
2.000	-.493	-.12952	.16239	.07908	-.10167	.00661	-.00520	-.12812	.16350	-.78361	5.09477
2.000	.521	-.08758	.16047	.07381	-.09694	.00600	-.00506	-.06904	.15967	-.55764	5.09291
2.000	1.557	-.04414	.15819	.06806	-.09689	.00527	-.00497	-.04842	.15693	-.30852	5.09193
2.000	2.597	-.00416	.15657	.06325	-.09450	.00457	-.00497	-.01125	.15622	-.07204	5.09044
2.000	4.680	.07839	.15236	.05310	-.09156	.00269	-.00488	.06577	.15824	.41519	5.09944
2.000	8.848	.24282	.14399	.03841	-.09019	.00144	-.00595	.21778	.17962	1.21243	5.09950
2.000	13.030	.40279	.13367	.03345	-.08333	-.00315	-.00647	.36228	.22104	1.63894	5.08639
2.000	16.154	.52423	.12498	.02858	-.07596	-.00809	-.00578	.46876	.26590	1.76293	5.08697
2.000	21.397	.73161	.11048	.01800	-.07052	-.01488	-.00553	.64088	.36977	1.73317	5.08919
2.000	26.660	.93969	.09831	.01572	-.06534	-.01971	-.00700	.79568	.50948	1.56173	5.08976
2.000	31.872	1.15277	.08722	.01222	-.06702	-.02105	-.00660	.93291	.68276	1.36637	5.09312

RUN NO. 2/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.182	-.12816	.14288	.04127	-.08843	.00794	-.00337	-.12520	.14549	-.86054	5.07395
2.500	-.162	-.08956	.14025	.03865	-.08464	.00731	-.00352	-.08917	.14050	-.63462	5.07131
2.500	.824	-.06252	.13835	.03639	-.08209	.00675	-.00338	-.06450	.13744	-.46933	5.05976
2.500	1.873	-.02437	.13588	.03287	-.08338	.02618	-.00350	-.02880	.13591	-.21332	5.57161
2.500	2.886	.00787	.13373	.03054	-.07964	.00542	-.00309	.00112	.13395	.00837	5.05914
2.500	4.929	.06848	.12976	.02674	-.07825	.00429	-.00360	.05708	.13516	.42233	5.05697
2.500	9.069	.21020	.12020	.01932	-.07419	.00277	-.00498	.18863	.15104	1.24233	5.05683
2.500	13.214	.34862	.11258	.01317	-.07050	.00024	-.00631	.31366	.18929	1.65701	5.05685
2.500	16.319	.45818	.10554	.00842	-.06832	-.00323	-.00715	.41007	.23903	1.76267	5.05816
2.500	21.515	.64136	.09373	.00443	-.06024	-.00804	-.00700	.56230	.32241	1.74404	5.05576
2.500	26.741	.83405	.08505	.00130	-.05504	-.01234	-.00750	.76658	.45125	1.56583	5.05566
2.500	31.932	1.04091	.07585	.00027	-.05471	-.01353	-.00772	.84327	.61492	1.37135	5.05679

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LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1WVS2E1F1)

(RN6207)

PAGE   10

PARAMETRIC DATA

BETA   =   .000   ELEVTR = -10.000
BDFLAP = -11.700   SPDBRK =   55.000

BETA   =

RUN NO.   24/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.138	-.20981	.18093	.11570	-.00096	.00116	.00035	-.20292	.18063	-1.07573	-.03917
1.500	-1.120	-.15677	.17943	.10763	.00077	.00111	.00023	-.15324	.18246	-.83984	-.04094
1.500	-.096	-.10562	.17788	.09821	-.00263	.00093	.00023	-.10532	.17805	-.59148	-.03734
1.500	.962	-.04908	.17517	.08959	.00156	.00102	.00006	-.05201	.17432	-.29836	-.03802
1.500	2.021	.00641	.17203	.08222	-.00028	.00139	.00018	.00034	.17215	.00196	-.04062
1.500	4.114	.10877	.16673	.06904	-.00149	.00144	.00004	.09653	.17410	.55445	-.03914
1.500	8.335	.31909	.15423	.04668	-.00254	.00270	.00009	.29337	.19985	1.47530	-.03901
1.500	12.558	.52321	.14724	.03211	-.00385	.00242	.00043	.47068	.25748	1.65912	-.03802
1.500	15.714	.66893	.14270	.02997	-.00518	.00246	.00064	.60528	.31854	1.90015	-.03701
1.500	21.010	.91297	.13588	.03706	-.00577	.00279	.00094	.60536	.44950	1.79168	-.03608
1.500	26.333	1.16071	.11722	.05475	-.00519	.00222	.00164	.98827	.61993	1.59416	-.03562
1.500	28.399	1.27201	.11134	.05904	-.00205	.00255	.00065	1.06598	.70293	1.51647	-.03582

RUN NO.   26/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.472	-.12159	.15309	.05645	.00241	.00021	.00012	-.11762	.15616	-.75322	-.05926
2.000	-.455	-.07823	.15171	.05361	.00381	.00059	.00016	-.07702	.15233	-.50561	-.05218
2.000	.557	-.03894	.15076	.04856	.00242	.00079	.00022	-.04040	.15037	-.26868	-.06038
2.000	1.565	.00236	.14935	.04503	.00226	.00058	.00015	-.00172	.14936	-.01149	-.06070
2.000	2.638	.04556	.14758	.04108	.00175	.00029	.00019	.03872	.14952	.25895	-.06021
2.000	4.721	.12696	.14177	.03690	.00224	.00096	.00013	.11487	.15174	.75700	-.06111
2.000	8.898	.28692	.13383	.03352	.00109	.00152	.00029	.26275	.17660	1.48781	-.06006
2.000	13.089	.44890	.12736	.04042	-.00161	.00168	.00042	.40751	.22551	1.80706	-.05824
2.000	16.223	.57486	.12230	.04600	-.00227	.00165	.00061	.51780	.27804	1.86235	-.05763
2.000	21.493	.79895	.11187	.05386	-.00187	.00248	.00077	.70241	.39681	1.77013	-.05844
2.000	26.788	1.03330	.09660	.05621	-.00469	.00283	.00094	.87887	.55193	1.59237	-.05551
2.000	32.033	1.27075	.08576	.06387	-.00328	.00274	.00085	1.03177	.74673	1.38171	-.05524

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1WS2E1F1)   (RM2017)

PARAMETRIC DATA

BETA = .000 ELEVTR = -10.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 22/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.158	-.08991	.13350	.02575	.00760	.00155	.00029	-.08720	.13529	-.64452	-.06607
2.500	-.150	-.06031	.13250	.02401	.00627	.00125	.00014	-.05996	.13266	-.45200	-.06469
2.500	.854	-.02484	.13131	.02190	.00737	.00108	.00050	-.02679	.13092	-.20463	-.06559
2.500	1.862	.00451	.13004	.02161	.00683	.00127	.00039	.00028	.13011	.00216	-.06547
2.500	2.904	.03825	.12866	.02142	.00768	-.00128	.00028	.03169	.13043	.24295	-.06658
2.500	4.973	.10399	.12567	.02233	.01045	.00160	.00061	.09271	.13421	.69077	-.06680
2.500	9.114	.24326	.11750	.02642	.00807	.00167	.00045	.22158	.15455	1.43369	-.06617
2.500	13.268	.39114	.11177	.02903	.00597	.00176	.00070	.35505	.19856	1.78812	-.06502
2.500	16.374	.50044	.10745	.03386	.00495	.00171	.00067	.44986	.24417	1.84240	-.06436
2.500	21.599	.70539	.09677	.04241	.00588	.00265	.00100	.62024	.34963	1.77397	-.06543
2.500	26.855	.92246	.08578	.04867	.00553	.00325	.00121	.78423	.49323	1.59000	-.06515
2.500	32.056	1.14660	.07468	.05058	.00353	.00299	.00102	.93214	.67185	1.38742	-.06257

UPWT-1092 (LA-46A)ORBITER (B1WS2E1F1)   (RM4008)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = -10.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 25/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.140	-.21051	.17775	.11028	-.10908	.01059	-.00568	-.20372	.16549	-1.09830	5.09731
1.500	-1.124	-.15979	.17699	.10300	-.10545	.01000	-.00572	-.15629	.16009	-.86767	5.09432
1.500	-.109	-.10564	.17591	.09527	-.10257	.00973	-.00640	-.10530	.17611	-.59794	5.09171
1.500	.956	-.05148	.17457	.08771	-.09946	.00885	-.00667	-.05439	.17369	-.31314	5.08958
1.500	2.012	.05488	.17239	.07945	-.09742	.00800	-.00697	-.00117	.17246	-.00680	5.08847
1.500	4.106	.10740	.16751	.06615	-.09262	.00635	-.00790	.09513	.17477	.54428	5.08695
1.500	8.327	.31645	.15658	.04378	-.08711	.00499	-.00882	.29044	.20076	1.44672	5.08283
1.500	12.551	.51763	.14687	.03037	-.08700	.00294	-.00939	.47335	.25585	1.85011	5.08449
1.500	15.711	.66800	.13969	.02852	-.08285	-.00061	-.00908	.60599	.31558	1.92025	5.08430
1.500	20.996	.99982	.12456	.03640	-.07285	-.05332	-.00849	.80478	.44228	1.81962	5.08421
1.500	26.306	1.13860	.11631	.05961	-.05115	-.01759	-.00745	.96915	.65085	1.59176	5.07439
1.500	27.733	1.19913	.11504	.06689	-.04646	-.01975	-.00856	1.03784	.65984	1.52740	5.07248

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1WVS2E1F1)

(RMSD08)

PARAMETRIC DATA

BETA = 5.000	ELEVTR = -10.000	
BCFLAP = -11.700	SPDBRK = 55.000	

RUN NO. 27/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.462	-.12371	.15183	.05403	-.09868	.00713	-.00427	-.11979	.15494	-.77316	5.05078
2.000	-.454	-.08160	.15057	.05092	-.09644	.00678	-.00431	-.08060	.15121	-.53304	5.04888
2.000	.558	-.04273	.14923	.04695	-.09510	.00603	-.00420	-.04418	.14881	-.29691	5.04832
2.000	1.604	.00037	.14768	.04336	-.09240	.00527	-.00423	-.00376	.14763	-.02549	5.04645
2.000	2.647	.04137	.14646	.03941	-.09138	.00444	-.00416	.03456	.14822	.23319	5.04829
2.000	4.711	.12614	.14243	.03407	-.08744	.00366	-.00444	.11402	.15231	.74858	5.04371
2.000	6.894	.20666	.13427	.03197	-.08596	.00233	-.00539	.26245	.17698	1.48295	5.04332
2.000	13.099	.44876	.12799	.04020	-.07894	.00078	-.00577	.40811	.22630	1.80342	5.04557
2.000	16.220	.57542	.11987	.04395	-.07431	-.00463	-.00544	.51903	.27583	1.88169	5.04722
2.000	21.491	.79675	.10606	.04862	-.06470	.00899	-.00572	.70246	.39056	1.79858	5.04656
2.000	26.762	1.02354	.09647	.05720	-.05676	.01131	-.00645	.87028	.54732	1.59926	5.04222
2.000	32.020	1.26089	.08759	.06248	-.04858	.01391	-.01764	1.02263	.74280	1.37671	5.04783

RUN NO. 23/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
2.500	-1.135	-.08361	.13267	.02232	-.08797	.00751	-.00354	-.08096	.13439	-.60285	5.05444
2.500	-.153	-.05740	.13160	.02083	-.08906	.00697	-.00356	-.05705	.13175	-.43303	5.05583
2.500	.860	-.02388	.13042	.01968	-.08526	.00660	-.00356	-.02583	.13095	-.19663	5.05270
2.500	1.876	.00663	.12926	.01815	-.08656	.00586	-.00384	.00239	.12941	.01848	5.05443
2.500	2.910	.04463	.12763	.01833	-.08140	.00515	-.00367	.03810	.12973	.29356	5.05047
2.500	4.983	.11696	.12455	.01888	-.07653	.00382	-.00355	.10570	.13423	.78741	5.04789
2.500	9.106	.24583	.11779	.02339	-.07505	.00367	-.00498	.22409	.15521	1.44377	5.04735
2.500	13.269	.39300	.11103	.02614	-.07300	.00114	-.00571	.35703	.19827	1.80069	5.04758
2.500	16.372	.50023	.10593	.02913	-.06665	-.00100	-.00576	.45009	.24264	1.85495	5.04389
2.500	21.599	.70825	.09468	.03387	-.06020	-.00431	-.00606	.62366	.34675	1.78829	5.04240
2.500	26.864	.92929	.08446	.04168	-.05128	-.00562	-.00561	.79084	.49526	1.59680	5.03645
2.500	32.035	1.15983	.07696	.04837	-.04261	-.00810	-.00614	.92920	.67018	1.38052	5.03194

L-46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W5E1F1)

(RH5209)

PARAMETRIC DATA

BETA = .000   ELEVTR = -20.000
BDFLAP = -11.700   SPDBRK = 55.000

RUN NO. 30/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CC	L/D	BETA
1.500	-2.190	-.27261	.19701	.14844	-.00007	.00099	.00029	-.26488	.20728	-1.27787	-.03994
1.500	-1.164	-.21888	.19565	.13945	-.00145	.00010	.00023	-.21486	.20995	-1.07409	-.03653
1.500	-.134	-.16191	.19388	.13291	-.00038	.00079	.00011	-.16145	.19426	-.63109	-.03957
1.500	.912	-.10580	.19224	.12099	-.00133	.00070	.00010	-.10884	.19053	-.57128	-.03867
1.500	1.970	-.05333	.19051	.11567	-.00043	.00055	.00010	-.05905	.18657	-.31739	-.03951
1.500	4.071	.05628	.18618	.09918	-.00053	.00043	.00031	.04292	.18971	.22624	-.03662
1.500	8.289	.26289	.17172	.07820	-.00358	.00209	-.00036	.23538	.20783	1.13239	-.03728
1.500	12.516	.47253	.15927	.06332	-.00472	.00225	-.00016	.42676	.25789	1.65493	-.03696
1.500	15.077	.68022	.15113	.06188	-.00597	.00277	-.00009	.55632	.31509	1.77684	-.03662
1.500	20.976	.88161	.13861	.06937	-.00720	.00312	.00071	.73879	.43940	1.72688	-.03498
1.500	26.209	1.11527	.12249	.08452	-.00288	.00181	.00114	.94566	.60377	1.56623	-.03718
1.500	28.354	1.21411	.11907	.09058	-.00036	.00212	.00050	1.01190	.68139	1.46514	-.03672

RUN NO. 32/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CC	L/D	BETA
2.000	-1.490	-.15362	.16560	.07783	.00019	.00011	.00001	-.14932	.16753	-.89127	-.03799
2.000	-.481	-.11043	.16169	.07386	.00037	.00001	.00003	-.10906	.16262	-.66983	-.03789
2.000	.538	-.07092	.16038	.07019	-.00050	.00010	.00000	-.07152	.15972	-.44781	-.03737
2.000	1.574	-.02892	.15900	.06631	.00101	.00000	.00005	-.03237	.15817	-.20468	-.03709
2.000	2.618	.01416	.15737	.06303	.00077	-.00001	.00002	.00696	.15785	.04410	-.03743
2.000	4.701	.09595	.15393	.05782	.00137	.00037	-.00012	.08301	.16125	.51482	-.03639
2.000	8.884	.25774	.14180	.05622	.00204	.00103	-.00009	.23275	.17990	1.29376	-.03645
2.000	13.075	.42144	.13320	.06342	.00395	.00128	-.00013	.36038	.22598	1.68994	-.03531
2.000	16.205	.54559	.12713	.06967	.00421	.00123	.00015	.48843	.27434	1.78039	-.03547
2.000	21.464	.76307	.11656	.07695	.00477	.00164	.00034	.66750	.38770	1.72170	-.03466
2.000	26.765	1.00024	.10134	.08185	.00631	.00216	.00047	.84744	.54092	1.56668	-.03517
2.000	32.007	1.23251	.08931	.09215	.00561	.00163	.00006	.99782	.72899	1.36876	-.03893

L46 A/B TABULATED SOURCE DATA

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UPWT-1092 (LA-46A)ORBITER (B1WS2E1F1)

(RH209)

PARAMETRIC DATA

BETA = .000   ELEVTR = -20.000
BDFLAP = -11.700   SPDBRK = 55.000

RUN NO. 28/ 0

MACH	ALPHA	CN	CA	CLN	CY	CYN	CBL	CL	CD	L/C	BETA
2.500	-1.216	-.12388	.14090	.03994	.00783	.00039	.00012	-.12086	.14359	-.84227	-.04613
2.500	-.167	-.08375	.13896	.03824	.00823	.00044	.00037	-.08335	.13921	-.59873	-.04658
2.500	.819	-.05312	.13743	.03693	.00817	.00034	.00026	-.05508	.13566	-.40395	-.04684
2.500	1.881	-.01825	.13611	.03582	.00724	.00037	.00037	-.02271	.13544	-.16768	-.04599
2.500	2.890	.01839	.13394	.03490	.00694	.00032	.00019	.01162	.13470	.05626	-.04599
2.500	4.938	.07442	.13912	.03472	.00665	.00029	.00020	.06294	.13695	.46265	-.04516
2.500	9.086	.21636	.12102	.03349	.00672	.00084	.00025	.19453	.15367	1.26590	-.04519
2.500	13.236	.35538	.11314	.04016	.00498	.00062	.00026	.32703	.19150	1.57119	-.04493
2.500	16.350	.46505	.10048	.04895	.00515	.00097	.00038	.41571	.23591	1.76891	-.04485
2.500	21.566	.65776	.09801	.05952	.00417	.00164	.00056	.57569	.33292	1.72922	-.04396
2.500	26.814	.87389	.08624	.06622	.00388	.00211	.00064	.74103	.47118	1.57270	-.04350
2.500	32.023	1.08740	.07649	.07823	.00352	.00237	.00084	.80138	.64145	1.37405	-.04301

UPWT-1092 (LA-46A)ORBITER (B1WS2E1F1)

(RHG010)

PARAMETRIC DATA

BETA = 5.000   ELEVTR = -20.000
BDFLAP = -11.700   SPDBRK = 55.000

RUN NO. 31/ 0

MACH	ALPHA	CN	CA	CLN	CY	CYN	CBL	CL	CD	L/C	BETA
1.500	-2.199	-.27557	.19547	.14677	-.11534	.01209	-.00490	-.26787	.20590	-1.30096	5.08061
1.500	-1.169	-.22024	.19430	.13770	-.11164	.01153	-.00489	-.21623	.19875	-1.08792	5.07951
1.500	-.136	-.16229	.19275	.12880	-.10938	.01100	-.00491	-.16103	.19314	-.83788	5.07780
1.500	.911	-.10793	.19954	.11974	-.10752	.01026	-.00513	-.11095	.18860	-.58768	5.07669
1.500	1.962	-.05468	.18888	.11226	-.10534	.00920	-.00531	-.06111	.18689	-.32790	5.07560
1.500	4.070	.05387	.18534	.09745	-.09966	.00697	-.00617	.04058	.18869	.21508	5.07296
1.500	8.206	.26091	.17408	.07547	-.09393	.00549	-.00687	.23310	.25986	1.11974	5.06988
1.500	12.517	.46624	.16096	.06404	-.09553	.00437	-.00713	.42027	.25819	1.62776	5.07191
1.500	15.670	.61133	.15101	.06348	-.09045	.00135	-.00816	.54782	.31052	1.76420	5.07322
1.500	20.963	.85334	.13416	.07189	-.07794	-.00721	-.00774	.74887	.43957	1.73923	5.06867
1.500	26.275	1.09639	.12298	.09203	-.05637	-.01823	-.00696	.92868	.59561	1.55920	5.06399
1.500	28.314	1.18248	.12071	.10155	-.04855	-.02044	-.00678	.98377	.65711	1.47466	5.06513

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LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1WVS2E(F1))

(B4E010)

PARAMETRIC DATA

BETA = 5.000	ELEVTR = -80.000	
BDFLAP = -11.700	SPDBRK = 55.020	

RUN NO. 33/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
2.000	-1.497	-.15470	.16250	.07323	-.10220	.00767	-.00522	-.15040	.16649	-.90337	5.07434
2.000	-.478	-.11309	.16057	.07185	-.09954	.00721	-.00513	-.13175	.16151	-.65191	5.07229
2.000	.535	-.07114	.15876	.06895	-.09741	.00696	-.00511	-.07262	.15858	-.45939	5.07070
2.000	1.563	-.02046	.15726	.06447	-.09591	.00572	-.00508	-.03260	.15641	-.20972	5.07010
2.000	2.613	.01237	.15612	.06136	-.09323	.00465	-.00517	.00324	.15653	.03346	5.06638
2.000	4.698	.09443	.15244	.05584	-.09015	.00366	-.00536	.04163	.15966	.51128	5.06711
2.000	8.076	.25620	.14452	.05528	-.08649	.00262	-.00652	.20083	.18232	1.26605	5.06535
2.000	13.070	.41738	.13262	.06375	-.08956	.00792	-.00805	.29093	.22338	1.68431	5.06261
2.000	16.203	.54272	.12624	.06886	-.07446	.00471	-.00744	.37657	.27267	1.78217	5.06125
2.000	21.467	.76381	.11082	.07241	-.06735	.00063	-.00732	.48594	.38266	1.75161	5.05960
2.000	26.761	.99463	.09983	.08119	-.06123	-.01062	-.00594	.67027	.53598	1.57015	5.05656
2.000	31.995	1.22317	.09141	.09143	-.05105	-.01413	-.00641	.64315	.72351	1.36293	5.05128

RUN NO. 29/ C

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
2.500	-1.154	-.10948	.14034	.03595	-.08771	.00674	-.00290	-.10563	.14272	-.74710	5.07422
2.500	-.229	-.06732	.13886	.03483	-.08558	.00626	-.00309	-.07976	.13918	-.57309	5.07233
2.500	.805	-.04946	.13700	.03329	-.08758	.00586	-.00325	-.05138	.13623	-.37698	5.07436
2.500	1.841	-.01645	.13477	.03185	-.08519	.00518	-.00326	-.02077	.13417	-.15482	5.07305
2.500	2.867	.01746	.13271	.03566	-.08229	.00472	-.00316	.01076	.13342	.08063	5.07282
2.500	4.933	.08247	.12856	.02342	-.08156	.00408	-.00370	.07111	.13517	.52502	5.07121
2.500	9.087	.21498	.12126	.03070	-.07684	.00294	-.00456	.19313	.15359	1.25363	5.06882
2.500	13.232	.35109	.11341	.03867	-.07147	.00049	-.00468	.31581	.19976	1.65552	5.06672
2.500	16.339	.46486	.10715	.04466	-.06821	.00171	-.00513	.41594	.23359	1.76563	5.06514
2.500	21.558	.66371	.09451	.05210	-.06129	-.00421	-.00560	.56255	.33177	1.75587	5.06224
2.500	26.897	.87093	.08461	.06236	-.05996	-.00585	-.00546	.73837	.45769	1.57857	5.05468
2.500	32.014	1.08225	.07799	.07534	-.04510	-.00835	-.00586	.87631	.63907	1.36951	5.05347

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W5DC4E1F1)

(RN6011)

PARAMETRIC DATA

BETA = .000	ELEVTR = .000
BDFLAP = -11.700	SPDBRK = 55.000

RUN NO. 42/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
1.500	-2.091	-.14534	.16701	.07121	-.00040	.00213	.00041	-.13915	.17221	-.80805	-.05885
1.500	-1.070	-.09347	.16624	.06646	-.00260	.00246	.00033	-.09035	.16796	-.53792	-.05715
1.500	-.638	-.03918	.16548	.06158	-.00046	.00214	.00034	-.03907	.16550	-.23658	-.05893
1.500	1.004	.01488	.16435	.05760	-.00101	.00234	.00022	.01200	.16458	.07291	-.05870
1.500	2.066	.07052	.16219	.05349	-.00081	.00224	.00030	.06463	.16463	.39256	-.05883
1.500	4.178	.17697	.15451	.04915	-.00291	.00338	.00017	.16524	.16699	.98950	-.05803
1.500	8.410	.38872	.14881	.04237	-.00354	.00358	.00010	.36278	.20406	1.77776	-.05749
1.500	12.647	.59729	.14363	.03822	-.00519	.00381	.00024	.55135	.27092	2.03513	-.05611
1.500	15.805	.74824	.14451	.03371	-.00648	.00247	.00041	.68059	.34285	1.98513	-.05338
1.500	21.110	1.00658	.13663	.03583	-.00827	.00268	.00037	.88981	.49550	1.81596	-.05185
1.500	26.441	1.27725	.12347	.03481	-.00895	.00233	-.00016	1.08867	.67927	1.60269	-.05089
1.500	28.493	1.37437	.12117	.03718	-.01105	.00304	.00003	1.15010	.76213	1.50925	-.04972

RUN NO. 44/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
2.000	-1.430	-.07835	.14982	.02918	.00259	.00044	.00012	-.07459	.15173	-.49157	-.05979
2.000	-.413	-.03590	.14891	.02817	.00211	.00036	.00010	-.03482	.14916	-.23345	-.05930
2.000	.600	.00461	.14837	.02673	.00034	.00020	.00019	.00306	.14841	.02050	-.05747
2.000	1.647	.04707	.14383	.02814	.00179	.00150	.00020	.04291	.14513	.29568	-.06043
2.000	2.681	.08773	.14201	.02749	.00121	.00131	.00010	.08099	.14596	.55490	-.05971
2.000	4.783	.17538	.13966	.02898	-.00026	.00160	.00017	.16312	.15380	1.06059	-.05855
2.000	8.963	.34213	.13552	.03374	-.00174	.00150	.00024	.31691	.18668	1.69765	-.05685
2.000	13.156	.51090	.12919	.04078	-.00247	.00165	.00034	.46809	.24208	1.93363	-.05627
2.000	16.297	.64515	.12425	.04314	-.00346	.00178	.00038	.58434	.30029	1.94594	-.05553
2.000	21.580	.87785	.11664	.04615	-.00619	.00208	.00069	.77342	.43134	1.79356	-.05320
2.000	26.878	1.11563	.10645	.04557	-.00681	.00138	.00046	.94699	.59931	1.58013	-.05189
2.000	32.127	1.35797	.09881	.04987	-.00929	.00217	.00083	1.09749	.85584	1.36192	-.05034

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1WSOC4E1F1)

(RH6011)

PARAMETRIC DATA

BETA = .000   ELEVTR = .000
BDFLAP = -11.700   SFDBRK = 55.000

RUN NO. 40/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.146	-.06813	.13168	.00976	.00052	.00045	.00049	-.06548	.13301	-.49233	-.06681
2.500	-.133	-.03523	.13080	.01023	.00478	.00056	.00020	-.03492	.13089	-.26683	-.06166
2.500	.867	-.00649	.12827	.01154	.00497	.00081	.00027	-.00843	.12816	-.06578	-.06217
2.500	1.880	.02879	.12587	.01282	.00321	.00123	.00032	.02462	.12675	.19425	-.06112
2.500	2.921	.05980	.12419	.01411	.00596	.00123	.00058	.05340	.12708	.42320	-.06362
2.500	5.001	.13869	.12084	.01946	.00329	.00179	.00021	.12763	.13247	.96351	-.06177
2.500	9.129	.26659	.11653	.01999	.00192	.00115	.00026	.24473	.15735	1.55528	-.05972
2.500	13.302	.42695	.11011	.02507	.00082	.00145	.00043	.39016	.20539	1.89966	-.05902
2.500	16.423	.55352	.10654	.02890	-.00195	.00140	.00024	.50082	.25869	1.93598	-.05658
2.500	21.658	.76213	.09829	.03618	-.00310	.00168	.00045	.67205	.37263	1.80355	-.05583
2.500	26.920	.98561	.09016	.03915	-.00378	.00174	.00056	.83799	.52663	1.59123	-.05537
2.500	32.136	1.21451	.08231	.04126	-.00469	.00101	.00079	.98465	.71573	1.37573	-.05393

UPWT-1092 (LA-46A)ORBITER (B1WSOC4E1F1)

(RH6012)

PARAMETRIC DATA

BETA = 5.000   ELEVTR = .000
BDFLAP = -11.700   SFDBRK = 55.000

RUN NO. 43/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.092	-.14330	.17021	.06794	-.10702	.00862	-.00444	-.13699	.17532	-.78134	5.09033
1.500	-1.061	-.09079	.17031	.06353	-.10241	.00774	-.00468	-.08762	.17196	-.50955	5.09480
1.500	-.045	-.03793	.16922	.05907	-.09814	.00748	-.00504	-.03779	.16925	-.22330	5.09091
1.500	1.008	.01507	.16842	.05531	-.09653	.00724	-.00547	.01210	.16866	.07174	5.08959
1.500	2.067	.06911	.16636	.05017	-.09577	.00652	-.00569	.06306	.16875	.37371	5.08962
1.500	4.182	.18100	.15986	.04473	-.09290	.00641	-.00666	.16886	.17263	.97812	5.08701
1.500	8.411	.38578	.15141	.03647	-.08669	.00447	-.00716	.35948	.20621	1.74330	5.08335
1.500	12.630	.58707	.14654	.03640	-.08417	.00337	-.00684	.54082	.27136	1.99300	5.08222
1.500	15.801	.74153	.14114	.03625	-.08045	.00061	-.00746	.67508	.33773	1.99889	5.08171
1.500	21.116	1.01207	.12677	.03188	-.07454	-.00394	-.00868	.89844	.48287	1.86561	5.08124
1.500	26.436	1.26804	.11860	.03137	-.06186	-.01261	-.00740	1.08265	.67072	1.61415	5.07684
1.500	28.486	1.36604	.11695	.03928	-.05439	-.01711	-.00672	1.14488	.73432	1.51777	5.07673

UPWT-1092 (LA-46A)ORBITER (B1WVSOC4E1F1)   (RH6D12)

PARAMETRIC DATA

BETA = 5.000	ELEVTR = .000
BDFLAP = -11.700	SPDBRK = 35.000

RUN NO. 45/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.442	-.08268	.14855	.02787	-.09944	.00563	-.00419	-.07891	.15059	-.32402	5.07485
2.000	-.421	-.03979	.14775	.02744	-.09675	.00561	-.00430	-.03870	.14804	-.26142	5.07220
2.000	.594	-.00092	.14631	.02614	-.09491	.00518	-.00436	-.00244	.14629	-.01669	5.07088
2.000	1.633	.04183	.14481	.02526	-.09344	.00489	-.00442	.03769	.14594	.25827	5.06937
2.000	2.674	.08529	.14353	.02481	-.09305	.00449	-.00451	.07850	.14735	.53275	5.06927
2.000	4.758	.17057	.14019	.02535	-.08923	.00292	-.00485	.15836	.15385	1.02926	5.06610
2.000	8.952	.34074	.13361	.02993	-.08608	.00060	-.00568	.31580	.18501	1.70695	5.06532
2.000	13.155	.51406	.12713	.03550	-.08129	.00104	-.00646	.47164	.24079	1.95869	5.06390
2.000	16.299	.64723	.12151	.03627	-.08113	-.00104	-.00684	.58711	.29827	1.96840	5.06474
2.000	21.573	.87699	.11355	.03924	-.07327	-.00629	-.00717	.77381	.42804	1.80777	5.06320
2.000	26.870	1.11669	.10244	.04316	-.05940	-.01392	-.00620	.94983	.59608	1.59345	5.05845
2.000	32.109	1.34986	.09555	.04677	-.04947	-.02013	-.00568	1.09259	.79842	1.36844	5.05583

RUN NO. 41/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.133	-.06551	.13058	.00646	-.09606	.00653	-.00377	-.06091	.13181	-.49215	5.06339
2.500	-.138	-.03410	.12939	.00707	-.09149	.00818	-.00389	-.03378	.12948	-.26093	5.05959
2.500	.863	-.00845	.12761	.00684	-.09551	.00816	-.00409	-.01037	.12747	-.08134	5.06309
2.500	1.904	.03969	.12595	.00846	-.09287	.00579	-.00425	.03548	.12720	.27893	5.06109
2.500	2.933	.06305	.12470	.00893	-.09353	.00548	-.00426	.05659	.12776	.44294	5.06198
2.500	5.053	.13775	.12106	.01280	-.09022	.00517	-.00475	.12666	.13261	.95512	5.05944
2.500	9.147	.26291	.11377	.01750	-.08339	.00469	-.00568	.26123	.15730	1.66068	5.05379
2.500	13.307	.43515	.10829	.02054	-.08306	.00349	-.00661	.39854	.20534	1.93992	5.05508
2.500	16.423	.55071	.10415	.02480	-.07923	.00151	-.00667	.49879	.25561	1.95141	5.05363
2.500	21.646	.75791	.09547	.02988	-.06952	-.00412	-.00672	.66925	.36832	1.81704	5.05098
2.500	26.910	.97918	.08632	.03340	-.05788	-.01057	-.00625	.83409	.52014	1.60357	5.04738
2.500	32.116	1.20382	.08202	.03920	-.04942	-.01404	-.00721	.97600	.70946	1.37371	5.04340

LA46 A/B TABULATED SOURCE DATA

UFWT-1092 (LA-46A)ORBITER (B1WVSOC4E1F1)

(RH4013)

PARAMETRIC DATA

BETA =	.000	ELEVTR =	-10.000
BCFLAP =	-11.700	SPDBRK =	55.000

RUN NO. 56/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CC	L/D	BETA
1.500	-2.151	-.21270	.18328	.11620	.00583	.00227	.00040	-.20568	.19113	-1.07611	-.06297
1.500	-1.112	-.16006	.18270	.11010	.00552	.00177	.00056	-.15649	.18577	-.84235	-.06216
1.500	-.084	-.09962	.18135	.10610	.00476	.00231	.00038	-.09935	.18149	-.54745	-.06210
1.500	.967	-.04880	.17998	.10173	.00607	.00188	.00032	-.05182	.17913	-.28931	-.06294
1.500	2.017	.00686	.17783	.09842	.00483	.00229	.00012	.00060	.17796	.00335	-.06227
1.500	4.131	.11458	.17325	.09154	.00520	.00174	.00032	.10181	.18106	.56229	-.06224
1.500	8.366	.32703	.16464	.08496	.00141	.00206	.00025	.29960	.21047	1.42346	-.05938
1.500	12.612	.53818	.15480	.08239	.00094	.00275	.00053	.49140	.26858	1.82953	-.06205
1.500	15.764	.68689	.14889	.07972	.00056	.00257	.00036	.62061	.32990	1.88122	-.05985
1.500	21.084	.95275	.13512	.08159	-.00530	.00325	.00190	.84032	.46879	1.79254	-.05561
1.500	26.408	1.21769	.12292	.08307	-.00649	.00232	-.00012	1.03595	.65168	1.58967	-.05387
1.500	28.465	1.31994	.11880	.08768	-.00413	.00176	.00007	1.10374	.73355	1.50466	-.05570

RUN NO. 58/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CC	L/D	BETA
2.000	-1.454	-.12120	.15643	.05615	.00654	.00148	.00021	-.11719	.15945	-.73495	-.06273
2.000	-.444	-.07719	.15485	.05577	.00725	.00200	.00013	-.07599	.15544	-.48888	-.06407
2.000	.561	-.03781	.15399	.05329	.00511	.00134	.00019	-.03932	.15361	-.25597	-.06130
2.000	1.611	.00855	.15250	.05313	.00553	.00156	.00010	.00425	.15268	.02786	-.06201
2.000	2.653	.05151	.15098	.05253	.00355	.00150	.00003	.04447	.15320	.29026	-.06009
2.000	4.736	.13801	.14692	.05349	.00421	.00169	.00001	.12540	.15782	.79461	-.06119
2.000	8.939	.30846	.14043	.05798	.00231	.00210	.00012	.28289	.18655	1.51561	-.06528
2.000	13.128	.47397	.13265	.06487	.00035	.00172	.00035	.43145	.23683	1.82176	-.06226
2.000	16.277	.60866	.12704	.06800	-.00004	.00154	.00045	.54866	.29254	1.87550	-.05718
2.000	21.548	.83926	.11794	.07455	-.00286	.00208	.00054	.73728	.41794	1.76407	-.05660
2.000	26.847	1.07109	.10394	.07696	-.00549	.00129	.00025	.90871	.57644	1.57641	-.05367
2.000	32.092	1.30617	.09301	.08641	-.00745	.00180	.00042	1.05716	.77274	1.36807	-.05277

LA46 A/B TABULATED SOURCE DATA

(RN6013)

PARAMETRIC DATA

UPWT-1092 (LA-46A)ORBITER (B1W5O4E1F1)

BETA = .000 ELEVTR = -10.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 60/0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.152	-.09801	.13744	.02908	.00263	.00121	-.00027	-.09923	.13938	-.68321	-.05690
2.500	-.153	-.05981	.13550	.02975	.00339	.00096	.00010	-.05945	.13565	-.43805	-.05876
2.500	.852	-.02807	.13378	.03114	.00248	.00135	-.00001	-.03005	.13305	-.22536	-.05842
2.500	1.877	.00705	.13209	.03201	.00171	.00109	-.00011	.00272	.13225	.02054	-.05732
2.500	2.914	.04012	.13047	.03383	.00620	.00119	.00016	.03344	.13234	.25268	-.06167
2.500	4.970	.10396	.12704	.03574	.00030	.00090	-.00006	.09257	.13557	.68280	-.05636
2.500	9.117	.24287	.11954	.03774	-.00170	.00059	.00000	.22087	.15651	1.41116	-.05473
2.500	13.270	.38480	.11303	.04569	-.00276	.00054	.00016	.34858	.19834	1.75746	-.05435
2.500	16.385	.50570	.10841	.05496	-.00266	.00083	.00028	.45458	.24666	1.84293	-.05472
2.500	21.619	.70808	.09939	.06744	-.00478	.00126	.00013	.62165	.35328	1.75965	-.05403
2.500	26.887	.92819	.08944	.07644	-.00598	.00141	.00043	.78749	.49953	1.57630	-.05356
2.500	32.094	1.15331	.07982	.08597	-.00531	.00268	.00095	.93465	.68039	1.37370	-.05391

(RN6014)

PARAMETRIC DATA

UPWT-1092 (LA-46A)ORBITER (B1W5O4E1F1)

BETA = 5.000 ELEVTR = -10.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 57/0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.148	-.21046	.18137	.11209	-.10335	.01000	-.00476	-.20351	.18913	-1.07605	5.07623
1.500	-1.120	-.15363	.18080	.10679	-.10022	.00927	-.00492	-.15996	.18377	-.81659	5.07401
1.500	-.094	-.10375	.17994	.10199	-.09608	.00869	-.00517	-.10345	.18011	-.57439	5.07060
1.500	.967	-.04841	.17908	.09786	-.09604	.00819	-.00550	-.05142	.17624	-.28850	5.07107
1.500	2.021	.00603	.17751	.09389	-.09298	.00804	-.00581	-.00023	.17761	.00131	5.06817
1.500	4.134	.11644	.17326	.08810	-.08888	.00703	-.00654	.10364	.18121	.57196	5.06599
1.500	8.364	.32711	.16463	.07937	-.08029	.00454	-.00752	.29968	.21046	1.42391	5.05916
1.500	12.602	.53532	.15578	.07810	-.07725	.00254	-.00760	.48844	.26881	1.81702	5.05819
1.500	15.767	.68642	.14734	.07787	-.07933	.00015	-.00818	.62056	.32832	1.89010	5.06269
1.500	21.012	.95093	.13139	.07854	-.07361	-.00489	-.00883	.84010	.46450	1.80862	5.06217
1.500	26.398	1.20805	.11985	.08349	-.05735	-.01299	-.00765	1.02879	.64447	1.59634	5.05518
1.500	28.449	1.29915	.11718	.08017	-.05503	-.01655	-.00689	1.08645	.72191	1.50497	5.05493

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W3DC4E1F1)

(RMG014)

PARAMETRIC DATA

BETA = 5.000	ELEVTR = -10.000
BDFLAP = -11.700	SPCBRK = 55.000

RUN NO.   59/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.465	-.12400	.15575	.05443	-.09654	.00710	-.00407	-.11998	.15887	-.75519	5.07256
2.000	-.449	-.07993	.15446	.05271	-.09525	.00659	-.00427	-.07871	.15509	-.59736	5.07198
2.000	.559	-.04099	.15320	.05149	-.09267	.00617	-.00437	-.04159	.15280	-.27215	5.06976
2.000	1.605	.00652	.15153	.05145	-.08947	.00626	-.00448	.00228	.15166	.01501	5.06653
2.000	2.653	.05043	.15032	.04977	-.08951	.00578	-.00456	.04342	.15249	.28475	5.06701
2.000	4.740	.13748	.14703	.04993	-.08660	.00503	-.00489	.12406	.15789	.79079	5.06483
2.000	8.930	.30652	.14071	.05383	-.08166	.00320	-.00558	.26096	.16658	1.56563	5.06168
2.000	13.134	.47614	.13283	.06079	-.07646	.00060	-.00642	.43350	.23755	1.82469	5.05932
2.000	16.275	.61265	.12597	.06361	-.07605	-.00092	-.00677	.55279	.29262	1.88909	5.06037
2.000	21.554	.84131	.11542	.06837	-.07037	-.00566	-.00711	.74008	.41642	1.77723	5.05979
2.000	26.840	1.06886	.10279	.07473	-.05681	-.01361	-.00697	.90730	.57432	1.57980	5.05505
2.000	32.086	1.30101	.09252	.08497	-.04958	-.01985	-.00533	1.05314	.76947	1.36856	5.05479

RUN NO.   61/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.153	-.09426	.13646	.02742	-.09751	.00633	-.00360	-.09149	.13833	-.66141	5.06211
2.500	-.192	-.05550	.13435	.02797	-.09594	.00617	-.00377	-.05514	.13450	-.40996	5.06591
2.500	.845	-.02897	.13312	.02820	-.09157	.00570	-.00375	-.03093	.13268	-.23312	5.06237
2.500	1.879	.01379	.13072	.02925	-.09285	.00562	-.00416	.00949	.13111	.07241	5.06333
2.500	2.916	.04343	.12957	.02945	-.09211	.00518	-.00410	.03678	.13161	.27943	5.06329
2.500	4.980	.11326	.12561	.03241	-.08877	.00512	-.00456	.10192	.13497	.75517	5.06017
2.500	9.115	.24199	.11876	.03594	-.08537	.00423	-.00550	.22012	.15559	1.41470	5.05759
2.500	13.269	.38944	.11211	.04409	-.08432	.00295	-.00632	.35331	.19850	1.77989	5.05772
2.500	16.394	.50962	.10722	.05125	-.08040	.00087	-.00646	.45864	.24670	1.85913	5.05621
2.500	21.624	.70898	.09759	.05858	-.07205	-.00522	-.00619	.62313	.35199	1.77029	5.05448
2.500	26.674	.92280	.08781	.06927	-.05756	-.01099	-.00530	.78345	.49545	1.58129	5.04709
2.500	32.981	1.16296	.08070	.04428	-.05441	-.01496	-.00629	.93162	.77077	1.32944	5.04798

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W50C4E1F1)

(RN6315)

PARAMETRIC DATA

BETA = .000 ELEVTR = -20.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 36/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.191	-.27974	.19811	.14814	.00022	.00116	.00014	-.27196	.20067	-1.30334	-.05520
1.500	-1.180	-.22518	.19709	.14258	-.00039	.00128	.00010	-.22108	.20169	-1.09614	-.05792
1.500	-.143	-.16699	.19621	.13750	-.00011	.00129	.00010	-.16650	.19663	-.84676	-.05829
1.500	.915	-.11200	.19543	.13335	-.00143	.00142	.00002	-.11511	.19362	-.59453	-.05721
1.500	1.970	-.05680	.19423	.12943	-.00005	.00120	.00004	-.06345	.19217	-.33017	-.05838
1.500	4.084	.05586	.19057	.12308	-.00105	.00106	-.00020	.04215	.19456	.21718	-.05716
1.500	8.319	.26895	.17372	.11600	-.00259	.00198	-.00007	.24099	.21081	1.14317	-.05657
1.500	12.561	.47687	.16394	.11656	-.00391	.00247	.00017	.42980	.26372	1.62978	-.05581
1.500	15.716	.62720	.15578	.11575	-.00506	.00229	-.00004	.56156	.31985	1.75572	-.05456
1.500	21.033	.86506	.14360	.11730	-.00444	.00197	-.00008	.7456	.45168	1.71483	-.05475
1.500	26.358	1.15228	.12826	.11857	-.00812	.00254	-.00035	.97554	.62652	1.55758	-.05193
1.500	28.422	1.25587	.12505	.12360	-.01053	.00256	-.00049	1.04498	.70771	1.47657	-.04965

RUN NO. 38/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.489	-.15431	.16690	.07784	.00409	.00006	-.00001	-.14992	.17086	-.87749	-.05090
2.000	-.481	-.11271	.16538	.07663	.00319	.00019	-.00008	-.11132	.16632	-.66928	-.05015
2.000	.543	-.07123	.16435	.07623	.00343	.00010	-.00005	-.07278	.16367	-.44471	-.05034
2.000	1.576	-.02743	.16280	.07595	.00295	.00032	-.00006	-.03189	.16198	-.19689	-.05020
2.000	2.630	.01746	.16083	.07589	.00217	.00025	-.00012	.01006	.16146	.06229	-.05043
2.000	4.726	.10463	.15666	.07706	.00195	.00022	-.00016	.09137	.16475	.55458	-.05911
2.000	8.914	.27532	.14501	.08191	-.00066	.00107	-.00011	.24953	.18592	1.34211	-.05740
2.000	13.117	.44532	.13642	.08944	-.00174	.00102	.00005	.40274	.23392	1.72168	-.05624
2.000	16.266	.58064	.12842	.09426	-.00312	.00123	.000...	.52142	.28592	1.82369	-.05523
2.000	21.534	.80682	.11948	.10137	-.00425	.00155	.00016	.70665	.40729	1.73499	-.05446
2.000	26.821	1.03530	.10540	.10764	-.00559	.00167	.00004	.87637	.56120	1.56161	-.05340
2.000	32.053	1.26339	.09526	.11903	-.00661	.00161	.00013	1.02024	.75122	1.35810	-.05248

LA46 A/B TABULATED SOURCE DATA

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UPWT-1092 (LA-46A)ORBITER (B1W5OC4E1F1)

(RN6015)

PARAMETRIC DATA

BETA = .000 ELEVTR = -20.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 34/ 0

MACH	ALPHA	CN	CA	CLN	CY	CYN	CBL	Q	CD	L/D	BETA
2.500	-1.189	-.13041	.14545	.04681	.00803	.00063	.00022	-.12736	.14012	-.09085	-.05457
2.500	-.178	-.09293	.14355	.04644	.00857	.00071	.00013	-.09248	.14384	-.64296	-.06519
2.500	.635	-.05640	.14203	.04631	.00691	.00070	.00010	-.05846	.14119	-.41405	-.06378
2.500	1.863	-.02069	.14081	.04690	.00608	.00078	.00014	-.02521	.13986	-.18022	-.06318
2.500	2.895	.01007	.13914	.04799	.00634	.00082	.00020	.00303	.13947	.02174	-.06353
2.500	4.954	.07891	.13298	.05203	.01790	.00105	.00020	.06713	.13935	.48193	-.06310
2.500	9.109	.22957	.12068	.05631	.03338	.00164	.00001	.20757	.15550	1.33490	-.06134
2.500	13.270	.37920	.11163	.06064	.02282	.00190	.00025	.34345	.19569	1.75505	-.06126
2.500	16.369	.49859	.10626	.06654	.01236	.00220	.00014	.44835	.24262	1.84797	-.06128
2.500	21.627	.70628	.09839	.07764	.00040	.00257	.00027	.62030	.35177	1.76334	-.05987
2.500	26.886	.92238	.08895	.08723	.00046	.00264	.00043	.78245	.49646	1.57658	-.06703
2.500	32.086	1.13938	.07951	.09934	-.00067	.00155	.00050	.92310	.67261	1.37243	-.05917

UPWT-1092 (LA-46A)ORBITER (B1W5OC4E1F1)

(RN6016)

PARAMETRIC DATA

BETA = 5.000 ELEVTR = -20.000
BDFLAP = -11.700 SPDBRK = 55.000

RUN NO. 37/ 0

MACH	ALPHA	CN	CA	CLN	CY	CYN	CBL	Q	CD	L/D	BETA
1.500	-2.198	-.28358	.19736	.14905	-.11087	.01041	-.00901	-.27581	.20808	-1.32553	5.06059
1.500	-1.175	-.22602	.19656	.14326	-.10643	.00979	-.01534	-.22194	.20115	-1.10335	5.07888
1.500	-.139	-.16793	.19552	.13761	-.10484	.00896	-.00551	-.16746	.19993	-.85469	5.07633
1.500	.912	-.11349	.19454	.13268	-.10220	.00821	-.00559	-.11657	.19271	-.61490	5.07437
1.500	1.967	-.05620	.19295	.12828	-.09859	.00756	-.00578	-.06279	.19091	-.32891	5.07181
1.500	4.091	.05598	.18736	.12042	-.09489	.00635	-.00667	.04247	.19088	.22249	5.06970
1.500	8.314	.26601	.17314	.11239	-.09080	.00516	-.00797	.23987	.21205	1.13119	5.06728
1.500	12.556	.47774	.16385	.11261	-.08737	.00366	-.00813	.43069	.26379	1.63269	5.06571
1.500	15.707	.62240	.15928	.11438	-.08513	.00298	-.00817	.55712	.31797	1.75211	5.06328
1.500	21.027	.88981	.13643	.11539	-.08003	-.00396	-.00858	.78161	.44662	1.75007	5.06730
1.500	26.345	1.14153	.12604	.12612	-.06583	-.01500	-.00799	.96703	.61954	1.56088	5.06303
1.500	28.397	1.24090	.12252	.13241	-.05965	-.01677	-.00649	1.03253	.69749	1.48035	5.06214

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W9DC4E1F1)

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(RMGD16)

PARAMETRIC DATA

BETA =	5.000	ELEVTR =	-25.000
BDFLAP =	-11.700	SPDBRK =	55.000

RUN NO. 39/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CC	L/D	BETA
2.000	-1.492	-.15666	.16553	.07762	-.10120	.00711	-.00402	-.15431	.16960	-.90984	5.07902
2.000	-.482	-.11394	.16398	.07627	-.09871	.00670	-.00433	-.11256	.16493	-.68245	5.07902
2.000	.536	-.07351	.16218	.07493	-.09610	.00627	-.00437	-.07502	.16149	-.46457	5.07092
2.000	1.578	-.02814	.16049	.07422	-.09530	.00588	-.00442	-.03255	.15966	-.20386	5.07051
2.000	2.631	.01609	.15875	.07374	-.09410	.00558	-.00451	.00979	.15927	.05520	5.06984
2.000	4.716	.10335	.15502	.07418	-.08832	.00426	-.00465	.09026	.16299	.55375	5.06563
2.000	8.911	.27678	.14497	.07898	-.08515	.00290	-.00537	.25098	.18609	1.34871	5.06428
2.000	13.115	.44912	.13576	.08552	-.08180	.00026	-.00640	.40562	.23392	1.73402	5.06411
2.000	16.256	.58570	.12703	.08935	-.08510	-.00161	-.00657	.52192	.28451	1.83446	5.06455
2.000	21.524	.80295	.11676	.09618	-.07197	-.00630	-.00657	.70411	.45322	1.74624	5.06299
2.000	26.622	1.03400	.10429	.10405	-.06020	-.01417	-.00574	.87569	.55954	1.56475	5.05963
2.000	32.059	1.26125	.09453	.11843	-.05049	-.01958	-.00514	1.01874	.74957	1.35910	5.05930

RUN NO. 35/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CC	L/D	BETA
2.500	-1.178	-.11868	.14462	.04431	-.08717	.00728	-.00282	-.11568	.14703	-.78678	5.07365
2.500	-.182	-.09643	.14325	.04365	-.09070	.00713	-.00318	-.09597	.14355	-.66655	5.07711
2.500	.842	-.04572	.14028	.04444	-.08716	.00688	-.00335	-.04777	.13959	-.34223	5.07419
2.500	1.863	-.02004	.13888	.04415	-.08563	.00644	-.00343	-.02455	.13815	-.17768	5.07322
2.500	2.890	.01231	.13682	.04474	-.06602	.00639	-.00359	.00540	.13727	.03934	5.07357
2.500	4.964	.08327	.13142	.04691	-.08455	.00566	-.00451	.07159	.13813	.51829	5.07599
2.500	9.113	.23222	.12087	.05281	-.07940	.00519	-.00464	.21014	.15612	1.34599	5.06917
2.500	13.274	.37997	.11252	.05578	-.07964	.00422	-.00564	.34398	.19676	1.74824	5.07047
2.500	16.384	.49692	.10720	.06201	-.07071	.00195	-.00552	.44650	.24392	1.83729	5.06484
2.500	21.620	.70463	.09671	.07105	-.06391	-.00333	-.00569	.61962	.34966	1.77238	5.06463
2.500	26.876	.92188	.08644	.08119	-.05240	-.00972	-.00523	.78323	.49384	1.58599	5.06704
2.500	32.084	1.13451	.07918	.09653	-.04576	-.01332	-.00630	.91918	.66969	1.37254	5.05943

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LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W5DC41E1F1)   (RN6017)

PARAMETRIC DATA

BETA = .000   ELEVTR = .000
BDFLAP = -11.700   SPDBRK = 55.000

RUN NO. 46/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.084	-.14626	.17527	.07476	.00063	.00136	.00074	-.13979	.18047	-.77458	-.05976
1.500	-1.065	-.09026	.17431	.06909	.00222	.00140	.00088	-.08700	.17596	-.49445	-.06109
1.500	-.028	-.03569	.17330	.06363	.00286	.00123	.00065	-.03560	.17332	-.20541	-.06123
1.500	1.017	.01996	.17197	.05802	.00290	.00128	.00081	.01691	.17229	.09813	-.06106
1.500	2.132	.07758	.16994	.05272	.00285	.00112	.00051	.07121	.17271	.41230	-.06059
1.500	4.186	.18366	.16222	.04714	.00339	.00230	.00032	.17133	.17520	.97794	-.06253
1.500	8.410	.39434	.15584	.03629	.00045	.00230	.00057	.36731	.21184	1.73399	-.05975
1.500	12.645	.60321	.15071	.03022	-.00168	.00276	.00092	.55559	.27911	1.99955	-.05874
1.500	15.807	.75518	.14568	.02949	-.00173	.00234	.00114	.68594	.34589	1.98651	-.05767
1.500	21.107	1.01345	.13804	.02504	-.01702	.00269	.00231	.89575	.49373	1.81424	-.06053
1.500	26.447	1.29112	.13063	.01614	-.00728	.00186	.00200	1.09782	.69199	1.58547	-.06159
1.500	28.507	1.39665	.12900	.02221	-.00835	.00208	.00230	1.16574	.77994	1.49466	-.06040

RUN NO. 48/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.439	-.08693	.15406	.02686	.00447	.00081	.00046	-.08303	.15620	-.53157	-.05200
2.000	-.424	-.04198	.15320	.02497	.00471	.00087	.00045	-.04085	.15351	-.26610	-.05285
2.000	.595	.00259	.15257	.02308	.00490	.00093	.00053	.00101	.15259	.00662	-.05284
2.000	1.628	.04665	.15140	.02186	.00360	.00120	.00041	.04233	.15266	.27725	-.06164
2.000	2.670	.08936	.14896	.02187	.00458	.00153	.00034	.08232	.15296	.53820	-.06272
2.000	4.768	.17781	.14647	.02155	.00272	.00161	.00030	.16502	.16074	1.02664	-.06106
2.000	8.954	.34466	.14042	.02550	.00208	.00175	.00062	.31860	.19235	1.65639	-.06568
2.000	13.151	.51352	.13308	.03222	-.00560	.00121	.00063	.46977	.24642	1.95641	-.05742
2.000	16.294	.64749	.12642	.03308	-.00209	.00143	.00077	.58602	.30900	1.93493	-.05626
2.000	21.576	.87825	.12049	.03156	-.00283	.00132	.00115	.77245	.43493	1.77601	-.05591
2.000	26.866	1.12117	.11027	.02678	-.00448	.00156	.00165	.95033	.65954	1.57968	-.05491
2.000	32.116	1.36342	.10327	.02930	-.00401	.00119	.00183	1.09988	.81230	1.35403	-.05307

LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W5DC41E1F1)

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(RH6017)

PARAMETRIC DATA

BETA = .000   ELEVTR = .000
BDFLAP = -11.700   SPDBRK = 55.000

RUN NO. 50/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.148	-.07132	.13498	.00687	.00099	.00043	.00004	-.06060	.13639	-.50392	-.05887
2.500	-.136	-.03408	.13380	.00876	.00214	.00038	.00024	-.03376	.13388	-.23218	-.05927
2.500	.866	.00064	.13256	.01062	.00373	.00070	.00015	-.00136	.13255	-.01028	-.06198
2.500	1.889	.02436	.13175	.01073	-.00108	.00036	.00021	.02020	.13249	.15249	-.05708
2.500	2.924	.06547	.12915	.01318	-.00043	.00102	.00010	.05879	.13232	.44432	-.05722
2.500	4.967	.13117	.12509	.01473	-.00322	.00074	.00012	.11980	.13612	.88970	-.05848
2.500	9.128	.26539	.11969	.01362	-.00298	.00027	.00012	.24304	.16028	1.51635	-.05829
2.500	13.284	.41110	.11354	.01972	-.00288	.00037	.00036	.37401	.20496	1.82478	-.05444
2.500	16.404	.59080	.11005	.02517	-.00435	.00057	.00047	.47811	.25548	1.87145	-.05536
2.500	21.628	.73586	.10176	.02925	-.00511	.00052	.00085	.64655	.36582	1.76741	-.05312
2.500	26.887	.96399	.09435	.02629	-.00687	.00069	.00094	.81711	.52010	1.57105	-.05322
2.500	32.103	1.18699	.08879	.03020	-.01483	.00019	.00166	.95831	.70603	1.35733	-.05153

UPWT-1092 (LA-46A)ORBITER (B1W5DC41E1F1)

(RH6018)

PARAMETRIC DATA

BETA = 5.000   ELEVTR = .000
BDFLAP = -11.700   SPDBRK = 55.000

RUN NO. 47/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
1.500	-2.085	-.13984	.17630	.06973	-.10405	.00918	-.00548	-.13333	.18127	-.73553	5.07498
1.500	-1.072	-.09143	.17585	.06595	-.09932	.00699	-.00591	-.08812	.17753	-.49638	5.07072
1.500	-.039	-.03536	.17533	.06025	-.09649	.00816	-.00652	-.03525	.17535	-.20100	5.06990
1.500	1.014	.02133	.17398	.05649	-.09153	.00825	-.00683	.01825	.17433	.10466	5.06482
1.500	2.066	.07361	.17209	.05064	-.09194	.00737	-.00746	.06736	.17463	.38573	5.06641
1.500	4.172	.16209	.16706	.04203	-.08900	.00663	-.00686	.16945	.17986	.94210	5.06433
1.500	8.406	.39044	.15791	.03125	-.08232	.00456	-.00952	.36316	.21330	1.70262	5.06017
1.500	12.637	.59219	.15128	.02974	-.07902	.00307	-.00921	.54475	.27717	1.96542	5.05877
1.500	15.892	.74600	.14595	.02878	-.07612	-.00082	-.00962	.67806	.34359	1.97346	5.06591
1.500	21.112	1.00923	.13367	.02405	-.06364	-.00692	-.01271	.89335	.46821	1.82983	5.05479
1.500	26.437	1.27651	.12825	.02247	-.05904	-.01297	-.01135	1.08592	.68317	1.58953	5.05402
1.500	28.479	1.36542	.12698	.03023	-.04794	-.01720	-.01064	1.13964	.76271	1.49429	5.05236

LA46 A/B TABULATED SOURCE DATA

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UPWT-1092 (LA-46A)ORBITER (B1W5OK41E1F1)

(RW5016)

PARAMETRIC DATA

BETA = 5.000   ELEVTR = .000
BDFLAP = -11.700   SPDBRK = 55.000

RUN NO. 49/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.000	-1.451	-.08572	.15333	.02513	-.09877	.00684	-.00485	-.08181	.15345	-.52626	5.07218
2.000	-.433	-.04087	.15251	.02410	-.09524	.00695	-.00520	-.03972	.15282	-.25993	5.05688
2.000	.583	.02270	.15136	.02348	-.09299	.00686	-.00527	.00116	.15138	.00764	5.06729
2.000	1.630	.04494	.15092	.02091	-.09192	.00599	-.00540	.04065	.15124	.26880	5.06703
2.000	2.676	.08953	.14840	.01984	-.09121	.00583	-.00555	.08248	.15241	.54114	5.05488
2.000	4.769	.17602	.14583	.01903	-.08769	.00471	-.00601	.16328	.15996	1.02078	5.05233
2.000	8.959	.34672	.13959	.02202	-.08285	.00276	-.00736	.32075	.19187	1.67168	5.05982
2.000	13.155	.51858	.13059	.02856	-.07753	.00049	-.00864	.47525	.24519	1.93839	5.05904
2.000	16.295	.65114	.12484	.02898	-.07418	-.00149	-.00913	.58995	.30253	1.95708	5.05575
2.000	21.564	.88173	.11606	.02741	-.06444	-.00745	-.00969	.77736	.43201	1.79939	5.05723
2.000	26.866	1.12078	.10727	.02436	-.05729	-.01425	-.00787	.95134	.60218	1.57983	5.05723
2.000	32.112	1.35576	.10069	.02702	-.04544	-.02099	-.00642	1.09482	.80597	1.35840	5.05446

RUN NO. 51/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/D	BETA
2.500	-1.141	-.06494	.13497	.00574	-.09881	.00545	-.00369	-.06224	.13823	-.45065	5.05640
2.500	-.129	-.03061	.13385	.00613	-.09594	.00495	-.00363	-.03031	.13392	-.22633	5.05465
2.500	.873	.00456	.13240	.00724	-.09331	.00500	-.00391	.00254	.13246	.01915	5.06551
2.500	1.958	.03959	.13036	.00810	-.09207	.00453	-.00393	.03521	.13221	.26632	5.06218
2.500	2.936	.07100	.12934	.00855	-.09247	.00438	-.00430	.06429	.13290	.48407	5.06295
2.500	5.004	.13842	.12554	.01123	-.08997	.00403	-.00463	.12694	.13713	.92557	5.06105
2.500	9.133	.27554	.11717	.01191	-.09046	.00345	-.00600	.25346	.15942	1.58990	5.05204
2.500	13.290	.42631	.11141	.01652	-.08714	.00199	-.00656	.38929	.20642	1.88585	5.06586
2.500	16.410	.54242	.10713	.02063	-.08135	.00047	-.00705	.49906	.25550	1.91428	5.05807
2.500	21.632	.74078	.09912	.02351	-.07180	-.00654	-.00618	.65256	.36522	1.78541	5.05551
2.501	26.802	.96438	.09118	.02305	-.05992	-.01192	-.00556	.81895	.51737	1.58290	5.05532
2.500	32.004	1.17845	.08702	.02538	-.05403	-.01558	-.00606	.95224	.69968	1.36796	5.05775

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LA46 A/B TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W5K41E1F1)

PARAMETRIC DATA

(RW5019)

BETA = .000	ELEVTR = -10.000
BDFLAP = -11.700	SPDBRK = 55.000

RUN NO. 52/0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
1.505	-2.143	-.21606	.16495	.11952	.00172	.00198	.00072	-.20899	.19299	-1.08341	-.05152
1.500	-1.110	-.15915	.16442	.11333	.00145	.00163	.00080	-.15555	.18747	-.83972	-.05093
1.500	-.095	-.10439	.16318	.10881	.01278	.00214	.00060	-.10411	.18335	-.55782	-.05224
1.500	-.959	-.04993	.16163	.10353	.00367	.00197	.00060	-.03297	.18077	-.28301	-.05283
1.500	.959	.00669	.17961	.09856	.00271	.00182	.00055	.00035	.17974	.00196	-.05126
1.500	2.020	.11467	.17502	.09049	.00340	.00161	.00034	.10177	.18282	.55565	-.05175
1.500	4.128	.32978	.16554	.07907	.00059	.00184	.00051	.35218	.21176	1.42658	-.05933
1.500	8.367	.52829	.15624	.07394	.00141	.00214	.00057	.48155	.26761	1.79943	-.05778
1.500	12.587	.68794	.14965	.07341	-.00145	.00216	.00082	.62141	.33592	1.87724	-.05775
1.500	15.764	.94717	.13500	.07023	-.00530	.00193	.00135	.83333	.45646	1.79079	-.05421
1.500	21.068	1.22520	.12681	.06743	-.00525	.00191	.00150	1.04097	.65947	1.58091	-.05360
1.500	26.476	1.31999	.12482	.07494	-.00593	.00123	.00126	1.15094	.73843	1.49212	-.05178
1.500	28.463										

RUN NO. 54/0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/C	BETA
2.000	-1.466	-.11737	.15701	.05570	.00581	.00121	.00034	-.11351	.15997	-.70936	-.05457
2.000	-.456	-.07747	.15593	.05325	.00397	.00057	.00044	-.07623	.15554	-.49695	-.06179
2.000	.558	-.03341	.15452	.05271	.00535	.00110	.00035	-.03494	.15418	-.22665	-.06350
2.000	1.610	.00935	.15314	.05121	.00436	.00106	.00036	.00504	.15334	.03287	-.06225
2.000	2.663	.05333	.15151	.05019	.00428	.00091	.00022	.04623	.15382	.30055	-.06174
2.000	4.740	.13673	.14792	.04952	.00421	.00093	.00025	.12404	.15971	.78155	-.06176
2.000	8.927	.30484	.14110	.05358	.00291	.00151	.00035	.27925	.16669	1.49577	-.06122
2.000	13.130	.47074	.13135	.06099	-.00032	.00118	.00050	.42059	.23466	1.62492	-.05764
2.000	16.266	.65511	.12543	.06157	-.00065	.00137	.00071	.54576	.28991	1.88234	-.05759
2.000	21.555	.83151	.11863	.06151	-.00180	.00113	.00095	.72992	.41558	1.75639	-.05670
2.000	26.836	1.06937	.10642	.06066	-.00510	.00144	.00142	.95616	.57772	1.56653	-.05327
2.000	32.079	1.30799	.09585	.06888	-.00233	.00138	.00152	1.05737	.77588	1.35280	-.05492

LA46 A/O TABULATED SOURCE DATA

UPWT-1092 (LA-46A)ORBITER (B1W9OC41E1F1)

(RM5201)

PARAMETRIC DATA

BETA =	5.000	ELEVTR = -10.000
BDFLAP =	-11.700	SPDBRK = 55.000

RUN NO. 53/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/O	BETA
1.500	-2.141	-.21451	.16365	.11514	-.10852	.01057	-.00598	-.20737	.19153	-1.08337	5.07801
1.500	-1.113	-.15876	.16305	.10941	-.10468	.01028	-.00646	-.15516	.16511	-.83573	5.07491
1.500	-.098	-.10737	.16218	.10522	-.10071	.00958	-.00607	-.10736	.16256	-.58736	5.07174
1.500	.965	-.04876	.16099	.09996	-.09733	.00926	-.00769	-.03160	.16514	-.28736	5.06905
1.500	2.015	.05541	.17967	.09440	-.09552	.00843	-.00810	.00091	.17973	-.22598	5.06836
1.500	4.122	.11047	.17554	.08577	-.09203	.00719	-.00870	.09757	.18303	.53339	5.06658
1.500	8.362	.32459	.16588	.07369	-.08560	.00164	-.01081	.29702	.21133	1.40349	5.06318
1.500	12.594	.53343	.15472	.06945	-.07806	.00172	-.01071	.46686	.26720	1.82139	5.05926
1.500	15.753	.68385	.14696	.07151	-.07585	-.00039	-.01099	.61627	.32719	1.89018	5.05959
1.500	21.036	.93624	.13319	.07240	-.06949	-.00655	-.01254	.82587	.46368	1.79273	5.05987
1.500	26.397	1.20436	.12658	.07270	-.05992	-.01280	-.01213	1.02251	.64683	1.57593	5.05846
1.500	28.414	1.28722	.12361	.07705	-.05484	-.01569	-.00994	1.07333	.72122	1.48821	5.05721

RUN NO. 55/ 0

MACH	ALPHA	CN	CA	CLM	CY	CYN	CBL	CL	CD	L/O	BETA
2.000	-1.473	-.12029	.15640	.05509	-.09619	.00759	-.00952	-.11623	.15945	-.72894	5.15092
2.000	-.449	-.07883	.15519	.05519	-.09473	.00711	-.00532	-.07761	.15569	-.49815	5.06650
2.000	.564	-.03612	.15373	.05192	-.09245	.00682	-.00552	-.03763	.15337	-.24534	5.06669
2.000	1.612	.00856	.15206	.05060	-.09012	.00634	-.00566	.00428	.15224	.02808	5.16526
2.000	2.651	.04975	.15088	.04807	-.09111	.00560	-.00563	.04271	.15392	.27914	5.15731
2.000	4.733	.13358	.14831	.04684	-.08617	.00455	-.00608	.12088	.15482	.76113	5.15367
2.000	8.925	.30336	.14064	.05018	-.08027	.00239	-.00724	.27787	.16670	1.49532	5.06612
2.000	13.120	.47169	.13149	.05585	-.07819	.00004	-.00834	.42933	.23513	1.82676	5.06122
2.000	16.268	.60554	.12476	.05732	-.07455	-.00174	-.00939	.54635	.28939	1.88792	5.05958
2.000	21.542	.83624	.11572	.05709	-.06610	-.00737	-.00980	.73534	.41478	1.77520	5.05737
2.000	26.834	1.06697	.10379	.05915	-.05812	-.01415	-.00836	.95323	.57425	1.57637	5.05804
2.000	32.066	1.29744	.09404	.06688	-.04709	-.02043	-.00642	1.04958	.76849	1.36577	5.05563

END DATE   96   APR. 23, 1985